# Inconsistencies *of the* English Census *of* 1861, *with the* Registrar-General's Reports: *and* Deficiencies *in the* Local Registry *of* Births. *By* William Lucas Sargant, *Author of "Social Innovators," the "Science of Social "Opulence," &c.*

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## I.

The principal conclusions at which I arrive in my present paper are:—

1. That the Census of 1861 is not to be implicitly trusted, but requires further investigation.

2. That the male infants below 1 year old, are underrated by 36,546 or 12 per cent.; and the female infants by 30,831 or 10½ per cent.: that in the second year of life, the deficiencies are 11½ and 11 per cent.; in the third year, 2 and 1 per cent.; and in the first five years taken together, 6¾ and 6 per cent.

3. That this difference of error between male and female infants, is probably owing to the better registration of male births, and not to a worse enumeration of males in the census.

4. That the males and females together, of all ages *under* 20, are apparently underrated by 510,440; but that some considerable deductions have to be made from this number.

5. That the males and females together *of all ages* are probably underrated by more than half a million.

6. That the deficiency in the census is far greater in some districts than in others.

7. That the registration of births is very imperfect in some places: Liverpool and Hull appearing to be the worst; with London, Cheltenham, Plymouth, and Portsmouth, following in order of demerit.

8. That we have but few materials for comparing the Census of Scotland with calculations made from the registers of births; but that as far as we can judge the Scottish Census is as inaccurate as the English one.

## II.

The course of my argument will be found carefully epitomized in the "Recapitulation," at pp. 101 to 107.

III.

As to the correction of these errors, I suggest that the census should be taken in future just as it has been taken hitherto, in order that the estimated *rate of increase* may not be disturbed.

Further, I suggest, that it is not too late now to test the last census, by taking a present and elaborate enumeration of the most doubtful towns, beginning with Leicester, and going on to Coventry, Macclesfield, and Nottingham; all of them places of manageable size.

IV.

The calculated death-rate of certain districts is disturbed by this paper. If, *e.g.*, the population of Liverpool parish is one-fifteenth greater than it appears, the death-rate would be, not $\frac{33}{1000}$ as it now stands, but only $\frac{31}{1000}$; a lower rate than the calculated one of Manchester. Again, if the Liverpool births are one-seventh above those registered, the male infant death-rate falls from 240 to 206.

Hull, for the same reasons, would prove to be one of the healthiest towns in the kingdom.

Nottingham also, and other towns, are rescued from the strange position of having deteriorated in mortality, while improving in cleanliness.

V.

Some light is also thrown upon other perplexing topics:—the varying disproportion of the sexes at birth: the difference in that respect between one place and another: the alleged fact that that disproportion is not the same among legitimate and illegitimate children, nor among town and rural populations. In discussing these problems, it has always been assumed that male and female infants have equally been well or ill registered.

*Introduction.*

In February of last year, in a paper* read before this Society, on the Reports of the Registrar-General, I made some remarks on the relation between the announced death-rate calculated from the *census*, and the death-rate calculated from the registered *births*: and I complained of the exaggeration which represented the deaths under 5 years old as amounting in large towns to half the births.

In order to illustrate this matter, I gave the following case. "If "1,360 new-born infants are placed in an asylum on the same day, "and if their number is reduced by death, in five years, to 1,000, the "quinquennial death-rate is $\frac{360}{1360}$ or $\frac{265}{1000}$; but the mode I condemn "would call the death-rate $\frac{360}{1000}$."

* *Statistical Journal*, vol. xxvii, p. 170.

This case however, does not represent the actual course of events: children really are born daily and die daily. My paper, as I read it to this Society before correcting the proof, gave another illustration. "Suppose an asylum for children under 5 years old: the accommo- "dation for 1,000: the asylum always kept full by the admission of a "new-born infant for every one that died or left on its fifth birth- "day: the rate of mortality that of the table we are considering; *i.e.* "with 365 children dying each year. What is the death-rate in the "asylum? Here are 1,000 living, and 365 die: is the death-rate "$\frac{365}{1000}$? According to the ordinary mode of calculation it certainly "is so."

In the discussion which followed, an objection was raised: it was contended that I had misunderstood my own case: it was said that as a new-born infant was admitted every day, only one of such admitted infants, at the most, would have completed the first year of life, at the end of the calendar year; that the mean age of the children on the 31st of December, would be 6 months; that on the average they would have six months to live in the next year; and that half of their deaths during the first year of life would take place in the first calendar year, the other half in the second calendar year. I stated the true ratio as $\frac{365}{1000 + 365}$: according to my objectors it should be $\frac{365}{1000 + \frac{365}{2}}$.

This second illustration was certainly inaccurate, and I changed it in correcting my proof. I might perhaps, have avoided the blunder, but that I was misled by blunders elsewhere. When the illustration occurred to me, I tested the truth of it by applying it to the vital statistics of England and Wales generally: I calculated the infant death-rate from the registered deaths and the *census;* I modified it by the form I have given $\left(\frac{d}{1000 + d}\right)$; and I found the result nearly the same as the death-rate calculated directly from the deaths and the *births*. I will show presently what blunder of others it was, which neutralized mine, and converted a formula theoretically false into one practically true.

But I now maintain that even in theory, while I was wrong, the objectors were also wrong. *I* said the fraction ought to be $\frac{d}{1000 + d}$ *they* said it ought to be $\frac{d}{1000 + \frac{d}{2}}$: I now assert that it ought to be $\frac{d}{1000 + \frac{2d}{3}}$.

The question is this:—Of 1,000 infants born at a uniform rate, between 1st January and 31st December in any year, as 1859, (*i.e.*

born at about 3 each day) and who die at the rate of 160 in the first year *of life*, how many will die in 1859, and how many in 1860? According to my inaccurate illustration, the whole 160 will die in 1859: according to my censors only 80 will die in 1859: I propose to show that the real number of deaths in 1859 will be about two-thirds of 160, or 107.

*Table* D.—The opinion that only 80 will die in 1859, is based on the assumption that the deaths are distributed equally over the first twelve months of life: *i.e.*, that there will be as many deaths in 100 children of 11 months old, as in 100 children under 1 month old; an assumption quite unfounded. Table D in the Appendix, gives the proportions for each month, and shows that the deaths will be, during the first month 50; second month 18; third month 13; fourth, fifth, and sixth months together 31; seventh, eighth, and ninth months together 25; and the last three months together 23. Now of the infants born in 1859, at the assumed uniform rate of about three a-day, eleven-twelfths at least will have passed the dangerous first month of life, before 31st December 1859; and though the mean age of the infants on 31st December will be 6 months, the mean risk of death in 1860 will be far less than was the past mean risk of death in 1859.

*Table* E, is constructed to show what the proportions will be. I assume that 1,000 infants are born daily, and that the deaths during the first year *of life* are $\frac{160}{1000}$. I give below another table which will show the principle of Table E more fully than the table itself does.

| 1859. | | | | | 1860. | | | |
|---|---|---|---|---|---|---|---|---|
| | Births. | Time of Exposure. | Age during Exposure. | Deaths. | Number from First Year. | Time of Exposure. | Age during Exposure. | Deaths. |
| 1859. | | Days. | Days. | | 1860. | | Days. | |
| Jan. 1.... | 1,000 | 364 | 1 to 364 | 160 | 840 | 1 day | 364 | 0 |
| „ 2.... | 1,000 | 363 | 1 „ 363 | 159 | 841 | 2 days | 363 | 1 |
| „ 31.... | 1,000 | 11 mo. | 1 day to 11 mo. | 152 | 848 | 1 mo. | 11 to 12 mo. | 8 |
| Feb. 1.... | 1,000 | — | — | — | — | — | — | — |
| Mch. 31 | 1,000 | 9 mo. | 1 day to 9 mo. | 135 | 865 | 3 mo. | 9 to 12 mo. | 25 |
| June 30 | 1,000 | 6 mo. | 1 day to 6 mo. | 106 | 894 | 6 mo. | 6 to 12 mo. | 54 |
| Sept. 30 | 1,000 | 3 mo. | 1 day to 3 mo. | 80 | 920 | 9 mo. | 3 to 12 mo. | 80 |
| Nov. 30 | 1,000 | 1 mo. | 1 day to 1 mo. | 45 | 955 | 11 mo. | 1 to 12 mo. | 115 |
| Dec. 30 | 1,000 | 1 day | 1 day | say 5 | 995 | 364 days | 2 ds. to 1 yr. | 155 |
| „ 31 | 1,000 | — | — | — | 1,000 | 12 mo. | 0 to 12 mo. | 160 |

On the 1st January 1859, 1,000 are born: on the 31st December they have been exposed to the risk of death during 364 days, and the deaths will have been 160. On the 2nd January another 1,000 are born: on the 31st December they have been exposed to the risk of death during 363 days, and the deaths will have been 159, leaving one death to take place on 1st and 2nd January 1860. The 1,000 born 31st January, will on 31st December have been exposed to the risk of death during eleven months; the deaths during those eleven months will have been 152, and the deaths in January 1860 will be 8.

The reason why the number of deaths will be different in the two years, is that the ages of the children are different. Out of 365,000 children, only 1,000 spend their first day in the year 1860, and 364,000 spend their first day in 1859. Starting from the closing hour of 1859, every day of 1860 adds to the average age; whereas going backwards in 1859, every day diminishes the average age.

In Table E, I have not made my calculations for each *day* of the year 1859; for a table so constructed would take up ten pages of the *Statistical Journal.* I have made my calculations for the average of each *month;* and this corresponds with Table D, which gives the proportion of deaths for each month and not for each day. The result is, that of 365,000 infants born uniformly 1,000 a day, and who die at the rate of 160 in the first year of life, there will die in 1859, 38,426 and 19,974 in 1860: nearly two-thirds to one-third: a proportion very far from half each year.

Let us now see whether by my formula, $\frac{d}{1{,}000 + \frac{2d}{3}}$, we can pass correctly from the death-rate calculated by register of deaths and *census*, to the death-rate calculated by register of deaths and register of *births.*

In 1860 (and indeed in every year), there will be living two classes of infants under 1:—first, those born in 1859: and secondly those born in 1860. On 31st December 1860 indeed, there will be only one class remaining; because the infants born in 1859, will have either died, or passed the limit of one year: the last born in 1859, viz. born 31st December, will, on 31st December 1860, be 1 year old. But the deaths during 1860 of infants under 1 year, will have taken place among both these classes: and if we suppose the same number and uniformity of births in 1860 as in 1859, these infant deaths in 1860, will belong, one-third to 1859, and two-thirds to 1860; or, more exactly (reducing results of Table E to a lower denominator) $\frac{55}{1000}$ will belong to 1859 and $\frac{105}{1000}$ to 1860.

Say then, that a census is taken 31st December 1860. Each 1,000 infants born uniformly during 1860, are reduced to 1,000 − 105 = 895: the deaths during 1860 have been 160: the death-rate will

be announced as $\frac{160}{895} = \frac{179}{1000}$. According to my formula therefore, the deaths to the births will be $\frac{179 \times 1000}{1000 + \frac{2}{3} \cdot 179}$ which is as nearly as possible $\frac{160}{1000}$, as it ought to be.

*Inference as to General Death-rate.* — A curious consequence follows from these facts. The general death-rate of England and Wales is about $\frac{22}{1000}$: *i.e.*, to every 1,000 persons of all ages left alive at Christmas, 22 have died during the year. What then, on the previous 1st January, was the *expectation of deaths?* It might seem to be $\frac{22}{1000 + 22}$, or something near that; but I believe that this is far from the truth, since this formula takes no account of the births during the year and of the deaths among the children born. The births are about 35 to every 1,000 living (allowing for non-registration): *i.e.*, every 1,000 persons living on 1st January, will become by 31st December, 1,000 + 35 (born) − 22 (died) = 1,013.

The deaths during the year will take place partly out of the 1,000 persons we started with, and partly out of the 35 infants born. Reckoning the infant death-rate at $\frac{143}{1000}$ for both sexes, during the first year *of life*, the deaths out of the 35 infants born at uniform intervals of the year, will be $\frac{2}{3} \cdot \frac{143}{1000} \cdot 35 = 3\frac{1}{2}$ nearly. This leaves $22 - 3\frac{1}{2} = 18\frac{1}{2}$ for the deaths which occur among the 1,000 persons we started with. It follows that while the announced death-rate is $\frac{22}{1000}$, the expectation of deaths is only $\frac{18\frac{1}{2}}{1000}$.

This great difference between the death-rate and the expectation of death, is caused by the great number of births. In England, the increase of population is considerable, as is also the emigration: in France both these are much less. In France therefore, there is far less difference than there is in England, between the death-rate and the expectation of deaths. If, in England, emigration ceased, and the births just equalled the deaths, the difference in question would fall from $3\frac{1}{2}$ to about 2. But to people living, the most interesting question is, what is the expectation of deaths, and not, how many births and consequent deaths are likely to occur. England therefore, has a vital advantage over France, greater than that indicated by the respective death-rates.

The Table E, on which this reasoning is based, assumes that the births in 1860 would be the same as in 1859: but in fact the births must increase as the population and as the emigration increase; *i.e.* from 1 to 2 per cent. each year. I might have constructed another table taking this into account: the difference however, is not enough to render such a tedious addition necessary.

*The Census.*

For the reasons given above, I am convinced that the formula $\frac{d}{1000 + \frac{2}{3}d}$ furnishes the means of passing from the calculated death-rate to the expectation of deaths, with a sufficiently near approach to accuracy. But as I have before said, the actual application of the formula to the Registrar-General's infant death-rate, does not give us the true expectation of infant deaths, as calculated from *births* and deaths. The incorrect formula $\frac{d}{1000 + d}$ gives more nearly the true expectation. This excites a suspicion that the figures we deal with are wrong; *i.e.* that the register and the census are inconsistent with each other. That the register of births is defective is always avowed, and I shall assign reasons for believing that the census also is defective.

*Preliminary Propositions.*—It will simplify my task if I start with certain propositions which are essential to my argument.

1st. The registration of deaths may be taken as accurate. There are many reasons why it should be more accurate than the registration of births. Neglect to register a funeral is punishable by a penalty of 10*l.*: there is no penalty with respect to a birth. Then a dead body must needs be disposed of, and the funeral even of a child is a rather grave matter. Burials also, nearly all take place in public cemeteries, and with the services of an undertaker. On the whole it is conceded that there are few failures to register deaths.

Some evidence may be obtained from a comparison of the two decades, 1841-50 and 1851-60: by putting side by side, the average population of the two, and the registered births, marriages, and deaths of the two. The average population is learnt from the Census of 1851 and that of 1861: and though I dispute the accuracy of the latter, I presume it to be as near to the truth as the Census of 1851: the calculated *increase* therefore, may be taken as accurate.

The average population was as follows.

| | | |
|---|---|---|
| Enumerated in 1841 | 15,914,148 | average 1841-50 |
| „ '51 | 17,927,609 | 16,920,879 |
| Enumerated in 1851 | 17,927,609 | average 1851-60 |
| „ '61 | 20,066,224 | 18,996,916 |

Therefore the average population of the second decade, was greater than that of the first, by 2,076,037 or 12¼ per cent. (This differs from the increase in the enumeration of 1861 over that of 1851, which was below 12 per cent.)

We find that the births registered during the first decade,

were 5,488,736. In proportion to the population, the births during the second decade should have been 12¼ per cent. more = 672,370, making 6,161,106. But the births actually registered during the second decade were 6,471,650; showing an excess in the second decade of 310,544. Now we know that the registered births during the second decade were under, and not over, the actual births. It follows, that *if* the births in proportion to population were about equally numerous during the two decades, the registry of births during the first decade was worse by 5·66 per cent. than during the second decade.

2nd. As to marriages:—

| | |
|---|---|
| There were registered during the first decade | 1,355,497 |
| Adding 12¼ per cent. | 166,048 |
| The marriages during the second decade should have been | 1,521,545 |
| But the number actually registered was | 1,601,731 |
| Showing an excess in the second decade of | 80,186 |

Therefore, *if* the marriages in proportion to population were about equally numerous during the two decades, the registry of marriages during the first decade, was worse by 5·91 per cent. than during the second decade.

3rd. As to deaths:—

| | |
|---|---|
| There were registered during the first decade | 3,769,396 |
| Adding 12¼ per cent. | 461,751 |
| | 4,231,147 |
| But the number actually registered was | 4,210,715 |
| Showing a DEFAULT in the second decade of (or about ½ per cent.) | 20,432 |

Bringing these results together, we find that *if* during the second decade, the people were, in proportion to their numbers, just as prolific in births, marriages, and deaths, as they were during the first decade, then, during the years 1841-50, the registered births were fewer than they should have been, in comparison with 1851-60, by 5·66 per cent., the registered marriages were fewer by 5·91 per cent., the registered deaths were more by ·54 per cent.

As regards the deaths, there is nothing here to cause any suspicion as to the accuracy of the register. As regards marriages and births, we must conclude that they were very imperfectly registered during the earlier years, unless we afterwards find reasons for believing that there was really an increase in them in proportion to population, during the second decade as compared with the first decade.

II. My second fundamental proposition is, that the Census of 1851 and that of 1861, may be regarded as about equally inaccurate; and that therefore, the calculated rate of increase (11·93 per cent.) may be relied on. I have no conclusive proof to offer; but the same machinery, worked by nearly the same hands, will probably have produced the same results. In particular districts perhaps, there was a good deal of difference, owing to a deterioration of the superintendent here, and a change in the same officer there; but the great number of the districts gives ample room for defect in one place being compensated by excess in another.

III. My third fundamental proposition is, that the registry of *births* from 1851 to 1860, was deficient by $7\frac{1}{2}$ per cent. This proposition rests principally on the statement made in the third volume of the "Census," pp. 5 and 6. The passage is not easily understood.

"The increase of the population of England and Wales since the "last census was 2,174,327. The increase was at the rate of 12 per "cent. in ten years; or, 1·141 annually.

"The emigrants of English origin in the last ten years amounted "to 640,316, which makes the numerical increase since the Census "of 1851 to be 2,814,643. The increase of the emigrants abroad is "probably rapid, and *it may be taken to represent the emigration "reflux.*

"A certain deduction must be made for the Scotch immigrants "who crossed the Tweed and never returned, as well as for "the Irish emigrants who settled in England. The increase "in the ten years of the numbers of the Scotch and Irish in "England was 120,790, which has, however, to be reduced by "the increase of the Englishmen in Scotland and Ireland. The "number of persons in England born abroad increased by "63,429 in the ten years; but this is counterbalanced again "by the increase of Englishmen abroad, exclusive of the recorded "emigrants. If the whole of the increase of the 184,219 persons "in England, born out of its limits, be struck off, the natural "increase recorded becomes 2,630,424; and it is certainly the "minimum to be arrived at by estimate, the true number being "between this and 2,814,643.

"Taking the natural increase at only 2,630,424, the excess of "the registered births over the registered deaths accounts for "2,260,935 of the number, leaving 369,489 children in ten years, or "36,950 annually, who are left unregistered under the Act, which "does not enforce by penalty the registration of births on the "parents or on the guardians of children."

I believe I understand this passage; except indeed, that part which I have put in italics, about an alleged reflux of emigration.

I will put the figures into a form which appears to me more favourable for comparison.

| | | | |
|---|---|---|---|
| Increase of population by census | 2,174,327 | Excess of registered births over deaths | 2,260,935 |
| Increase by emigration to a distance | 640,316 | Known as living in England but born abroad | 63,429 |
| Increase by emigration to Continent, to Ireland, and to Scotland, say | 60,000 | Known immigrants from Ireland and Scotland | 120,790 |
| *Increase of persons unenumerated in the census | 95,000 | Probable addition to the two last lines | 15,000 |
| | | Balance carried forward | 509,489 |
| | 2,969,643 | | 2,969,643 |

This balance (509,489) is the estimated number of births unregistered during the ten years 1851-60. The census, in the passage I have quoted, makes the number something between 369,489, and 453,708. My excess is owing to the addition made by the line marked *, and this I will explain.

The writer assumes the census to be accurate; whereas it is certain that there will be errors in an enumeration depending on the co-operation of several millions of heads of families, for the most part imperfectly educated. And it can scarcely be doubted that most of the errors will be omissions; since writers may naturally forget to enter a lodger or a child, but will scarcely trouble themselves to enter fictitious persons. The only question is, how many are omitted. If, as seems probable, these are something like 1 in 20, or 5 per cent., the number omitted in the *increased* population of two millions, will be about 100,000. The exact increase, omitting army and navy abroad was 2,138,615 and 5 per cent. on this number is 106,930: this I have reduced to 95,000 to allow for possible overstatement.

The births registered from 1851-60 were 6,471,650.

The unregistered I have estimated at 509,489, or nearly 8 per cent.; but to keep within the mark I will call this 7½ per cent. (or 485,373).

This then, is my third proposition:—that the actual births from 1851-60 were 7½ per cent. above those registered.

IV. My fourth proposition is, that the actual births during the first decade (1841-50), were 12½ per cent. above those registered; but this estimate is subject to reduction, so far as it can be shown that the number of married women between 20 and 45 years old, was greater in proportion to population between 1851-60, than it was between 1841-50.

I have already given my reasons for assuming that the registry of births was worse by 5 per cent. in the first decade than in the second: nor is it incredible that this should have been the case; since in the years immediately following the establishment of the

register, the habit of communicating each birth to the local office had not been formed even among the educated classes; and the acting registrars had not acquired the skill they now generally possess, of ferreting out the births among the uneducated. But if the deficiency from 1851-60 was 7½ per cent., and the deficiency in the earlier decade was 5 per cent. worse, then that earlier deficiency was 12½ per cent., or 1 in every 8 births.

*Tables* F and G.—Having laid down these four preliminary propositions, I proceed to explain Tables F and G, both of which have reference to infants under 1 year old: F for males and G for females. The result is this:—that there is a deficiency in the census of 36,000 boys and 31,000 girls, making a total deficiency of 67,000 for *this first year of life.*

The boys omitted are 12 per cent., but the girls only 10½ per cent.; a difference between the sexes not easy to explain. It is highly improbable that parents generally should, in filling up their census papers, be more accurate as to female infants than as to male. But a possible explanation has occurred to me. The deficiency is found by comparing the census with the register of births: the census-enumeration of boys is less than the register would indicate by 12 per cent.; the census-enumeration of girls is less by only 10½ per cent.: this difference however, may be caused, not by a superior accuracy in the *census of girls*, but by a superior accuracy in the *birth-registry* of boys. Suppose, *e.g.*, that 100 boys and 100 girls were born, and none died; and that there—

| | Girls. | Boys. |
|---|---|---|
| Were registered ..... | 98½ | 100 |
| That the census gave..... | 88 | 88 |

then the census would be apparently deficient by 10½ girls and 12 boys, simply because the boys had been better registered.

If then, we can believe that boys are better registered than girls, by one or two in a hundred births, the problem is solved. I can believe that boys are better registered to this small extent, and I even think it not improbable that such is the case. For in all parts of the world the birth of a son is more thought of than the birth of a daughter; it being the son who continues the family; whereas the daughter, when she marries, enters into another family: and under our law of primogeniture, backed by the engrained customs of landowners of every rank, the son has precedence over the daughter in succession to realty. It is likely therefore, that boys may to a slight degree be more carefully registered than girls.

*Divisions of England and Wales.*—These vary a good deal as to apparent inaccuracy: Wales having a deficiency of 18 per cent., but London only 7 per cent. The obvious explanation is, that the superior intelligence of London causes the superiority: but I shall afterwards give reasons for believing, that the census of London is really taken badly; and that the apparent superiority is the result of the inaccuracy of the register of births, by which the census is here measured.

The worst divisions after Wales, are the northern and north-midland each with a deficiency of 15 per cent.: then Yorkshire, the west midland, and the south midland, with 14 per cent.: after these, the south western with 13 per cent.; the eastern with 12 per cent.; the south-eastern and north-western with 10 per cent. This is for boys only: the order for girls is nearly the same.

I will now explain how I arrive at these results. It is necessary first, to make the census and the register correspond in date. The census of 1861 was taken on the 8th April: the Registrar-General makes his reports to the 31st December. I deduct from the census the small average growth of the three months between the 31st December 1860 and the 8th of April 1861, amounting to about 3 in every 1,000 persons.

Next, how many infants must there have been living on 1st January 1861? On this day, all those born in 1859 will be over 1 year old; and therefore, we are concerned only with those born during 1860. And the census ought to contain all the children born during 1860, except those who have emigrated or died. The emigration, as I shall hereafter show, is so trifling for this one year of life, that it may be disregarded.

The two questions then, are;—how many infants were born, and how many died of those born. The births we may estimate by adding 6 per cent.* to the register. The deaths are not so easily learnt: because what we want is, the deaths *out of those born during the year;* whereas the deaths registered include those which occurred among infants remaining over from the previous year. Table E however, already explained, enables us to separate these two classes: for it teaches us that of the infants born in 1859, the deaths in the first year of life would take place at the rate of two-thirds in the year 1859, and one-third in the year 1860. If the population were stationary, and the rate of births and deaths were uniform from year to year, we might at once divide the deaths under 1, during 1860, into thirds; and charge one-third to the infants brought over from 1859, and two-thirds to the infants born during 1860. But as the births and deaths are not uniform, we may approximate to the truth,

* I add only 6 per cent., although I might have added 7½ per cent.

by taking all the deaths under 1 during 1860, and deducting one-third of all the deaths under 1 during 1859. (It must be remembered that these deaths during 1859, include the deaths among infants brought over from 1858).

*Table* F.—I can now explain Table F. Columns 1 and 2 give the names and order of divisions, arranged according to demerit. Column 3 gives the births during 1860. I have added to the register, not $7\frac{1}{2}$ per cent. as might have been expected, but only 6 per cent. All that we know at present, is that during the ten years 1851-60, there were on the average $7\frac{1}{2}$ per cent. of births unregistered: we do not know whether the failure of registration was uniform during the ten years. In constructing my other tables, some reasons occurred for believing that the birth-register was more accurate during 1856-60 than during 1851-55. I have therefore reduced the allowance for non-registration to 6 per cent. during the first five years, and have raised it to 9 per cent. during the second five years. I have thus considerably weakened my argument so far as Table F is concerned.

Column 4 gives the deaths under 1 for 1860, and these I take unaltered from the register. Column 5 gives one-third of the deaths under 1 for 1859, also taken unaltered from the register.

Column 6 gives the number of boys under 1 who must have been living on 1st January 1861, according to the columns 3, 4, and 5: it consists of the births during 1860, minus the deaths out of those births during 1860. Column 7 gives the number of such boys according to the census, corrected to 1st January 1861. If the corrected number of births is accurate (as I presume it is), and if my calculations are accurate, the census would give the same numbers as column 6, within the few hundred children removed by emigration. The actual numbers are:—

Number of boys under 1 year old, living 1st January 1861:—

| | |
|---|---|
| 1. Calculated from births and deaths | 333,539 |
| 2. Enumerated by the census | 296,993 |
| Deficiency of boys in the census for one year of life | 36,546 |

or 12 per cent. If I had added $7\frac{1}{2}$ per cent. to the births, the deficiency would have been nearer 14 per cent.

Now, that there should be some deficiency, is probable, if not certain. We all know that on the 7th April 1861, a printed form was left at every house; and that the head of the family was required to fill this up, before the collector called for it next day. Among the educated classes probably, the process was accurately performed, though I have known cases in which the paper was never returned. But in the worst parts of towns, and in remote

parts of the country, many omissions were inevitable. In such districts, many persons cannot write, and must painfully find a deputy. The large class who write with difficulty, would never add a name, and would often omit one. No man of business would trust his profits to a process so slovenly.

Some of the collectors too, would be overworked, unwell, or indolent. Papers not ready, might be filled up hastily; scattered houses might be overlooked. Then, nearly all the errors would be on one side, that of omission.

I have consulted competent persons, and I find it believed that the census was imperfect. One said, of course it must have been so: another—a clergyman with a large town parish—found his houses greatly underrated, but imagined they might have been set down in another parish: another remembered that there were at the time, several letters stating that certain houses had been overlooked.

On the whole therefore, I can readily believe that the population is far more numerous than it appears to be by the census. Yet writers of the highest reputation assume the accuracy of the census as a matter of course: they take for granted the accuracy of a number ascertained by the operation of counting, performed under the superintendence of legally appointed officers. Mr. Norman, *e.g.*, in his valuable pamphlet on taxation lately republished, says (p. 15), "The amount of population at each decennial period, is "known with great exactness." If Mr. Norman had said that the decennial *increase* is known with *tolerable* exactness, I should have agreed with him. But I am sure that if Mr. Norman were concerned in a grand operation for buying up twenty million sheep, scattered all over England and Wales, he would not be satisfied with one counting, done hurriedly in a single day.

*Table* G does for girls what Table F does for boys. I have already pointed out, that the deficiency as to girls is only 10½ per cent. for England and Wales, against 12 per cent. for boys. I have also mentioned my conjecture, that this arises from a better birth-registration of boys, and not from any superior accuracy in the enumeration of girls.

This difference is found in every division, though in unequal degrees. The difference for all England and Wales is 1½ per cent.; for Wales and for Yorkshire 3 per cent.; for London, and for the northern, north midland, south midland, west midland, and south-eastern divisions, 2 per cent.; for the north-western, south-western, and eastern divisions, only 1 per cent.; showing 2 per cent. as the difference in a full half of the kingdom, though the small difference in certain large divisions, brings the average down to 1½ per cent.

*Emigration.*—I promised to give my reasons for disregarding emigration in these two tables. I find that the annual emigrants

from 1851 to 1860, were 64,031.* Of these about one-fourth, or 16,008, were under 14 years old:† and therefore, even if there were as many infants as other children carried out, the annual infant emigrants (under 1) would be little over 1,000; and the deficiency of both sexes in the census would be reduced from 67,377 to 66,233, leaving the percentage about as before.

*Tables* H and I.—Having convinced myself that the census greatly underrated the number of infants, and desiring to know how far this deficit was the result of misstatement of age, and how far of entire omission, I extended my inquiry to other ages; and the results will be found in Tables H and I. The calculations extend to all ages under 20: and as they are based on the known births, I could go no further; since I am already carried back to the births of 1841, while the Registrar-General's first report is dated only 1838, and during the three first years can scarcely be regarded as trustworthy. The population also naturally divides at 20, with something near the same numbers above and below that age. We must be content to *calculate* up to 20, and to *estimate* from 20 upwards.

The deficiency in the census, on the assumption that the birth-rate in proportion to population was the same in the two decades, was—

| | | |
|---|---|---|
| Of males ..... | 286,844 | or 6·3 per cent. |
| „ females ..... | 223,596 | „ 5 „ |
| „ both sexes ..... | 510,440 | „ 5·6 „ |

making a deficiency on the whole population of $5\frac{1}{2}$ per cent. If it were supposed that the deficiency was equally great as to other ages, it would follow that the population of England and Wales was greater than the census made it, by $5\frac{1}{2}$ per cent., or 1,103,630 persons. But many deductions have to be made from this number.

These Tables H and I are constructed on the same principles as the preceding ones; the principal difference being that F and G had reference to infants only, while the present tables have reference to all ages under 20. The first line of H is the same as the first line of F, except that in H an allowance is made for emigration. This however, amounts to only 435 out of a census of nearly 300,000 infants, though in the higher ages it becomes a very considerable matter. The deficiency in boys under 1, is, as I have already stated, 12 per cent.

The second line calculates the deficiency in boys who on 1st January 1861, were over 1 year old and under 2; all of whom must have been born on or after 1st January 1859, and before 1st January 1860; *i.e.* during the year 1859. From this number

* "Census" iii, 6. † Miscellaneous Statistics, "Emigration."

must be deducted the emigration during two years of life, amounting to 870; and also the deaths during two years of life. Part of the deaths during the first year of life, will have taken place during the calendar year 1859, and part during 1860: but we shall be near the mark if we take the whole of the deaths under 1 in 1859. All the deaths in the second year of life, must have occurred in 1860; yet in 1860 some of the deaths registered as in the second year of life, will belong to children born in 1858. I assume that according to the ascertained law in the case of infants, the proportion of these will be one-third: and the proportion is of less importance, because the number of the second year's deaths is moderate, and in each succeeding line still less.

*Emigration.*—I get at the number to be deducted for emigration, in this way. I learn from the Census (iii, 6) that between 1851 and 1860, the emigrants of English origin amounted to 64,031 a-year. From the "Miscellaneous Statistics" I get the following figures.

| Emigration generally. | Over 14 Years. | Under 14 Years. |
|---|---|---|
| 1855..... | 124,313 | 10,176 |
| '56..... | 129,065 | 31,980 |
| '57..... | 161,685 | 37,238 |
| '58..... | 88,266 | 19,289 |
| '59–61 ..... | 235,368 | 47,806 |
| | 738,697 | 176,489 |
| Total ..... | 915,186 | |

The proportion under 14 years is $\frac{176489}{915186} = 19$ per cent. or nearly one-fifth.

Assuming the same proportions for emigrants of English origin only, the annual number of those under 14 would be 19 per cent. of 64,031 = 12,166. I divide these equally into boys and girls, as the known excess of male emigrants must consist principally of adults; and as any default of deduction in this table, will be corrected by an excess of deduction in the next table, of girls. I therefore call the annual emigration of boys $\frac{12166}{2} = 6083$: and distributing these equally among the fourteen years of life, the emigrants for each year of life under 14 will be $\frac{6083}{14} = 435$.

| | | | | |
|---|---|---|---|---|
| I deduct then, from children in the first year of life ..... | | | | 435 |
| „ | „ | second | „ ..... | 870 |
| „ | „ | tenth | „ ..... | 4,350 |

*i.e.*, 435 for each year that they have lived.

Column 11 furnishes the calculation made from the preceding figures: it consists of the births minus the deaths and emigration; and this shows what the census *ought* to be. Column 12 gives what the census *is:* column 13 gives the deficiency; and column 13 the proportion which the deficiency bears to the census.

Under Tables F and G, I have already explained that the deficiency in the census for boys under 1 year old is more than 36,000; and that the 435 which I here deduct for emigration, leaves the proportion of deficiency, 12 per cent. It appears therefore, that 1 male infant in 8 has been overlooked by the enumerators.

For the second year of life, the deficiency of boys is 31,500, or 11½ per cent. on the census. But for the third, fourth, and fifth years of life, the deficiency is only 2, 4½, and 3 per cent. respectively; and it seems probable therefore, that the large percentage in the first and second years, is a good deal owing to an incorrect statement of ages, and not to an actual omission of names. I therefore combine all the first five years of life; and I find that the total deficiency of boys under 5, is 6¾ per cent. on the census.

The succeeding years are of necessity grouped in fives, because the census gives them in this way.

| | | | | | | |
|---|---|---|---|---|---|---|
| The deficiency from the 6th to the 10th year, both included, is.... | | | | | 6¼ | per cent. |
| „ | 11th | „ | 15th | „ | .... 6 | „ |
| „ | 16th | „ | 20th | „ | .... 6 | „ |

The total deficiency of males for the first 20 years of life, is 286,844 out of a census of about 4½ millions, or about 6¼ per cent. But this is subject to certain deductions, and especially to one, on the ground that probably the birth-rate in proportion to population was higher from 1851-60 than it was in the former decade.

*Table* 1, of girls,—is constructed in the same way as the last table, of boys. I have already stated as to *infants*, that the apparent deficiency is less as to girls than as to boys; and I have suggested as an explanation, that it is not the census of girls which is better, but the birth-registration of girls which is worse. The same difference is found at other ages.

| | Years of Age, under | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | 1. | 2. | 3. | 4. | 5. | 6 to 10. | 11 to 15. | 16 to 20. |
| Deficiency in boys, *per cent.* ..... | 12 | 11½ | 2 | 4½ | 3 | 6¼ | 6 | 6 |
| Deficiency in girls, *per cent.* ..... | 10½ | 11 | 1 | 3 | 3 | 5½ | 6 | 2 |

The greatest difference between males and females, is at 15 to 20

years of age; caused probably by the habit of young women above 20, of enumerating themselves as under 20. In the census above 20, the numbers would, no doubt, be reduced to the same degree. The falling off in the deficiency of girls, just at the ages we might have anticipated, supplies some confirmation of the accuracy of the tables.

Another line appears, but only appears, to supply confirmation. By the Factory Acts, children under 8 are not allowed to work at all; and under 13 are allowed to work only half-time: parents have therefore, a pecuniary interest in calling their children older than they really are; and they would probably be careful not to contradict in the census return, any lie they have told elsewhere. It is stated by the late Commissioners on Education, that among the miners, the children's ages, in the absence of any proviso for surgical examination, are often overstated. I should therefore, not have been surprised to find the census at 8 and 13 years old, disproportionately large; or what is the same thing, the deficiency of the census disproportionately small. Now at 13 the census both of boys and of girls *is* so disproportionately large, that instead of a deficiency there is an excess. Yet this is a mere casual coincidence: for we do not really know how many of this age were enumerated; as the census tables supply only the whole number between 10 and 14, and the number at 13 is set down roughly in my tables as one-fifth of this.

Again, at 8 years old as compared with 7 and 9, the deficiency is disproportionate: here however, it is not smaller but larger: and there is the same objection as in the former case, from the fact that the census gives the *aggregate* of five years of life, and not the exact number of *each* year of life.

On the whole then, it appears from Tables H and I, that there are deficiencies of numbers in the census, to the extent of 286,000 males under 20, and 228,000 females under 20: being $6\frac{1}{4}$ and 5 per cent. respectively. It appears probable, also, that many women really above 20, are falsely set down as under 20. On the other hand, my tables take no account of the army or the navy, a certain proportion of which consists of boys and youths under 20. Perhaps, these may balance the young women falsely enumerated as under 20. At any rate, if no other deduction were required, we might fairly say that the deficiency in the census up to 20 years of age, was 5 per cent., taking both sexes together: and if we suppose the same omissions among persons of 20 years of age and upwards, the entire deficiency in the census would be more than a million.

But it is probable, that the deficiencies are caused by omissions in filling up the papers, more than by the loss of papers themselves: and that the omissions in filling up are less frequent as to adults than

as to children; since there can be few instances in which the heads of families are forgotten, and these constitute a large proportion of the adults. It is likely therefore, that the omissions of persons above 20 were far less than 5 per cent. Again; my tables are based on the supposition, that the rate of births in *proportion to population*, was the same in the second decade as the first: but I think it probable that the rate of births was higher in the second decade. This supplies another reason for suspecting that the deficiency in the census was less as to persons over 20 years old, than as to persons under 20. If therefore, we even believe that persons under 20 were more numerous by half a million than the census represents them, we shall not infer that the whole population exceeded by more than three-quarters of a million what the census represented them.

*Scotland.*—I should have been glad to compare these results with similar ones for Ireland and Scotland. But Ireland is only beginning its registration. Scotland has had a registration since 1855; but this is not nearly long enough for my purpose. Still, I can try the first year of life, and see whether the Scottish Census appears deficient like the English, and besides, whether the deficiency is, like the English, unequal in the two sexes.

Making my calculations as I made them for England, and assuming the same failure of 6 per cent. in the registry of births, I obtain the following figures:—

| | 1<br>Births 1860, plus 6 per Cent. | 2<br>Deaths under 1, 1860. | 3<br>One-third Deaths under 1, 1859. | 4<br>Calculated Population, viz. Col. 1 minus Col. 2 plus Col. 3. | 5<br>Census Corrected to 1st January. | 6<br>Deficiency. | 7<br>Deficiency per Cent. |
|---|---|---|---|---|---|---|---|
| Males only .... | 57,674 | 7,366 | 2,154 | 52,462 | 46,054 | 6,408 | 14 |
| Females „ .... | 54,293 | 6,047 | 1,687 | 49,933 | 44,398 | 5,535 | 12½ |
| Both sexes .... | 111,967 | 13,413 | 3,841 | 102,935 | 90,452 | 11,943 | 13 |

Comparing these with the English figures, we have—

*Deficiency in Census:—*

| | Males. | Females. | Both Sexes. |
|---|---|---|---|
| England ..... | 12 | 10½ | 11 |
| Scotland ..... | 14 | 12½ | 13 |

It results that, on the assumptions I have made, the Scottish deficiency is higher by one-sixth than the English: this however, may be, not because the census is worse, but because the birth-registration is better; and it is alleged that the Scottish registration

is better, in consequence of the infliction of penalties on parents who neglect to register: yet even on the improbable assumption that every birth is registered, the census would still be deficient.

As to the comparison of the sexes, it is remarkable that there should be the same difference in both countries: that in Scotland, as in England, the census deficiency of male infants should be greater than that of female infants, by $1\frac{1}{2}$ per cent. This confirms me in the opinion that the difference is not in the census but in the birth-registration; since it is highly improbable that in both countries the female infants should be better enumerated than the male infants, whereas it is probable that in frequent cases parents should be more careful to register their sons than to register their daughters.

But this argument throws light on the preceding paragraph: for if the argument is sound, it follows that many female births are not registered; and if this be so, if the penalties for non-registration are so far inoperative, it is probable that they may also be so in the case of some male children: we may therefore suppose that all which is accomplished in Scotland by the penalties is to cause a slightly better birth-registration than is found in England.

*Table* K.—I have extended my inquiry to counties, in Table K, and to towns in Table L, to ascertain whether the census deficiency is locally uniform or variable. As to most ages the flux of population would be an insuperable obstacle: but the migration of infants is comparatively so small that we may disregard it; and the more because its general direction is well known to be from rural districts into towns, and is therefore capable of being allowed for.

I find that while the apparent male infant deficiency in the census is for England and Wales 12 per cent., and for London 7 per cent., it is for Middlesex (extra metropolitan) only $6\frac{1}{2}$ per cent.; Sussex 7; Surrey and Devon, 9; Berks, Lancashire, and Suffolk, 10; Cumberland, Kent (extra metropolitan), and Leicester, 11; Essex, $11\frac{1}{2}$; Cheshire, Hants, Northumberland, Worcestershire, the East Riding, and North Wales, 12; Beds, and Somersetshire, $12\frac{1}{2}$; Gloucestershire and Warwickshire, 13; Derbyshire, Salop, Staffordshire, Westmoreland, and the West Riding, 14; Cambridgeshire, Huntingdonshire, Northamptonshire, Rutland, and Wiltshire, 15; Cornwall and Herefordshire, $15\frac{1}{2}$; Bucks, Hertfordshire, Norfolk, and the North Riding, 16; Dorset, Durham, Lincolnshire, and Oxon, 17; South Wales, 19; Notts, 20; Monmouthshire, 21. These deficiencies are of boys only; and I have not calculated the cases of girls.

In the order of excellence, Middlesex stands at the head: and it may be thought probable that the metropolitan county, when compared with remoter districts, should exhibit a superior intelligence, and a completer organization in taking the census. I will however, give reasons for believing that this superiority is only apparent.

The deficiency, it will be remembered, is calculated, by deducting the deaths from the births, and then comparing the census with the living remainder. The deaths I take as accurate. If the births, with the 6 per cent. I add, are also accurate, then the *apparent* census deficiency is the *real* one. But if, as I believe, the Middlesex birth-register is deficient by far more than the 6 per cent. I add, then the census is also really deficient by far more than the calculated $6\frac{1}{2}$ per cent.

The register of births is not compulsory on parents: among the lower classes, the motives for registering are slight: educated churchmen, and even lawyers, when proving an age, refer to the baptismal register in preference to the records of the Registrar-General: it follows that the accuracy of the register depends on the activity of the working registrar, and is liable to be disturbed by variations in his health and nervous energy. Besides this, in thinly peopled districts, as well as in crowded and squalid ones, there are additional difficulties in the way of the registrar. We may readily believe therefore, that some districts will be more exact than others.

In this case, as in that of the census, nearly all the errors will be on the side of omission: for though, as I understand, a fictitious district register has in one instance been foisted on the authorities, an occasional irregularity of that kind is not worthy of consideration. The difference therefore, between one place and another will be in the greater or less *omissions* of real births.

To estimate these omissions we want to know how many children are actually born in each district. To learn this fact precisely, is impossible; but I believe we may get some approximation to it, by comparing districts similarly situated. We should be far wrong indeed, if we assume that the births in each district are in proportion to population; because the young adults migrate *from* stationary parishes *to* increasing towns. We should be very far wrong if we assumed that the births in each district are in proportion to the marriages; for while in all

| | |
|---|---|
| England and Wales, the ten years' births to each marriage exceed | 4 |
| In Bristol they are below | 2 |
| „ Oldham they exceed | 6 |

Careful or negligent registration, cannot account for variations so great. People probably, marry in Bristol and breed outside, whereas they marry outside Oldham and breed within it.

I have therefore adopted the standard used by Messrs. Danson and Welton, in a paper on the Population of Lancashire and Cheshire.* I have taken from the census, the number of married women from 20 to 45 years old, in each county and afterwards in

* "Transactions of the Historical Society of Lancashire and Cheshire."

each town district; and though the fertility of each place will not be exactly the same, yet I think there will be no great difference comparing town with town, or comparing one rural district with another. Judging by the registers as they stand, the births *to marriages* are three times as numerous in Oldham as in Bristol; but the births *to married women* vary far less; the highest county rate being $\frac{358}{100}$ in Durham, against the lowest, which is $\frac{271}{100}$ in Surrey; while even in the town districts the greatest variation is from Bolton at $\frac{349}{100}$ to Hull at $\frac{246}{100}$. A variation of three to one cannot be caused by a difference of registration: a variation of 349 to 246 may.

Turning then, to Column 11 of Table K, we find that the 10 years' registered births to 100 married women of 20–45, are in all England and Wales 299, but in London only 270. Remembering that London here includes places so distant and so rural, as Hampstead and Lewisham, and a population of 2,800,000, we shall hardly believe that the fertility of the married women is much below that of the whole country, though it may be below that found in the very fast increasing counties, as in Durham with 358 births. To bring London up to the standard of the whole country, we must add one-ninth to the births, or 5,600: this will raise the deficiency of the census from 3,054 to 8,654. The deficiency before appeared to be 7 per cent.: it now appears to be no less than 20 per cent. If any one imagines that the prevalence of vice accounts for the fewness of births, I reply that the same phenomenon and the same apparent accuracy of the census, present themselves in that part of Middlesex and that part of Surrey which are outside the London district, and that they present themselves in no other county. I conclude that the London district, together with the remainder of Middlesex and Surrey, are pre-eminent for bad registration and bad census enumeration.

Devonshire comes next in order of demerit, with only 284 births. Raising this number to 299, the deficiency in the census grows from 9 up to 15 per cent.

In other counties the census appears to have been well taken, and at the same time the marriage fertility is at least as high as that of the whole country.

| | Apparent Deficiency in the Census. | Registered Births. |
|---|---|---|
| England and Wales .... | 12 | 299 |
| Berks and Suffolk ..... | 10 | 300 |
| Lancashire ..... | 10 | 309 |
| Kent ..... | 11 | 310 |
| Cumberland ..... | 11 | 331 |

It may be that in some of these cases the registration of births is imperfect, and the census therefore more deficient than it appears: but I have no proof that such is the case.

Going to the other end of the scale, the worst apparent census is that of Monmouth, with a deficiency of 21 per cent. If the birth-rate were low, the census deficiency might probably be even more than this 21 per cent.: as the birth-rate is in fact high, being 314, it is possible that the census was as well taken as in many other counties. It is even possible that the census deficiency was less than 21 per cent.: for in my column 4, I add 6 per cent. to the registered births; and it may be that the Monmouthshire parents do not allow 1 in 16 of their infants to remain unregistered. However, even on the improbable supposition that *every* birth is registered, there still remains a census deficiency of 14 per cent.

Notts is deficient by 20 per cent.: its recorded birth-rate is 309; not a high one for an increasing population: the census must have been badly taken. South Wales is deficient by 19: its recorded birth-rate is 302; not a high one: another example of a census badly taken.

It is impossible generally to assign the shares of imperfection to the census and the register respectively: it is only in extreme cases that we can safely correct one by the other. Where we *know* that the census is imperfect, we may *suspect* that the register is also imperfect, as issuing from the same local offices. But when the census looks unusually accurate, as in the case of London, it may be very inaccurate; and its apparent exactness is no just ground of confidence as to the birth-register. The result of my inquiry is to convince me, that both census and register vary much in the degrees of inaccuracy, comparing one district with another. I greatly desire therefore, to obtain further and more complete information as to both.

*Table* L.—In Table L, I have done for the towns, what in my last table I did for the counties.

The most remarkable fact here, is that in Liverpool, the census, instead of being deficient, is in excess by about 4 per cent. A person entirely ignorant of the grounds for distrusting these records, might infer that through an excess of immigration over emigration, the infants living in Liverpool were really more numerous than the births minus the deaths.

The true explanation is quite different: it is that the high apparent census is the result of a very imperfect birth-register; for on consulting column 11, we find only 252 births against 299 of all England, and against nearly 350 of Bolton and Wolverhampton. The Liverpool we are concerned with indeed, is only the parish, which is the worst part of the borough: it is a seaport, with a migratory and profligate throng of sailors: it may be conceived

therefore, that the birth-rate would be low, even in proportion to the number of married women. On the other hand I shall show afterwards, in Table N, that comparing this decade with the former one (1841-50), the register of births has fallen off as compared with population, to a degree which strongly confirms the previous condemnation of the recent register. If we raise the birth-rate to anything like that of all England, the census will appear very defective instead of in excess.

Hull, another seaport, comes nearest to this singular position; having a census apparently exact. But here again, is a marvellously low birth-rate: lower even than that of Liverpool, as 246 to 252. If we raise this rate to the ordinary level, the census will appear much below the truth.

Coventry is a remarkable case: the census appears too low by 31 per cent.; the birth-rate is reasonably high, at 315. Leicester resembles Coventry, with a census too low by 30 per cent., and an ordinary birth-rate. Macclesfield and Southampton have both of them a large apparent census deficiency; and Southampton has also a low birth-rate.

As we might have expected, there are greater inaccuracies in this table than in the last; because in a county, an error in one place is divided among the other portions of a large area.

*Table* M.*—I have another table of the same kind, for some of the London districts; and the results are similar to those of the counties and the towns. As to London generally I have already stated my opinion, that both census and birth-register are inaccurate.

There is a great difference among the sixteen selected districts: two having a census above the calculated number; three having a census apparently correct; and one having a census apparently deficient by 19 per cent.

1. As to the three apparently correct districts:—these are St. James, Westminster; the Strand; and West London. If the registered birth-rate here, were about the normal one of 299, I should think it possible that the census was trustworthy: but in two cases the birth-rate was only 230 and in the third case only 249: and raising this rate moderately, the census becomes very defective.

2. St. Giles is the district with a census apparently deficient by 19 per cent.: the registered birth-rate is 270. Raising this birth-rate to the normal 299, the census deficiency becomes 30 per cent. I cannot however, pretend to assert that the married women of St. Giles would be normally prolific.

3. St. Martin-in-the-Fields has a census apparently too large by 1 per cent: but the birth-rate is only 241; and raising this to the ordinary 299, the census deficiency becomes nearly 25 per cent. As

* See p. 124.

in the case of St. Giles however, I express no opinion as to the probable fertility of the women enumerated in the census as married.

Hampstead is the other district which has a census apparently too large; the excess being 3 per cent. Such a neighbourhood has probably a high *real* birth-rate; I do not mean in proportion to population, but in proportion to married women. The *registered* birth-rate is only 281. I therefore distrust both register and census.

St. George Hanover Square is worth noting. Its birth-rate appears as only 235: the census deficiency of 8 per cent. therefore, ought probably to be raised greatly. On the other hand, a large proportion of the married women may retire to their country houses to be confined.

Some persons may believe that the differences of birth-rate in one district and another, are real, and not results of better or worse registration. Yet I cannot believe that the married women of Bethnal Green are more prolific than those of St. James, Westminster, in the proportion of 294 to 230, a difference of more than a fourth.

I must notice the singularity of Lewisham, where from peculiar causes the birth-rate rose to 424; and yet the census appears nearly correct. But a district which increases by 89 per cent. in 10 years, may be disregarded.

*Table* N.*—I have sought for more evidence on this perplexed topic, by comparing the town registers of births, marriages, and deaths, during 1841-50, with those during 1851-60. I have already pointed out that the accuracy of the registers depends on the activity of the local officers; and that we may expect to find evidences of occasional laxity, if we put one period by the side of another.

I have previously made this comparison for all England. I have found that the *death*-rate was nearly the same for the two decades; and that the trifling improvement during the second decade was probably the effect of a better sanitary condition. I have found also, that during the second decade, the *marriage*-rate and the *birth*-rate were nearly 6 per cent. higher than they were in the first decade: and I concluded that, on the assumption of a really equal marriage and birth-rate during the two decades, the accuracy of the registers had improved by time.

By making the same inquiry for each town, we may form some notion of the comparative accuracy of the local registration during the two decades. Now in my remarks on Table L, I have argued that the birth-rate of Liverpool was grossly understated at 252 against 299 of all England. If we turn to Table N, we shall find singular confirmation of the opinion, that this birth-register has of late been badly kept. I will therefore explain the table.

* See pp. 122 and 123.

Supposing that the population increased with regularity, while every other element of vital statistics remained stationary, the births, marriages, and deaths, would be proportionate to the average population. I first find the average population of a district, for each of the two decades, and calculate the percentage of increase. If a particular population were 100,000 on the average of 1841-50, and 110,000 on the average of 1851-60, the increase would be 10 per cent. If other elements remained stationary, the births would be 10 per cent. more in the second decade than in the first decade.

In Liverpool, the excess of average population was nearly 10 per cent. Assuming therefore, an unchanged condition in other respects, the registered births during 1851-60 should have been 10 per cent. more than during the previous decade. But instead of this, *they were actually fewer* by 5 per cent.: the number of births registered should have been 104,000; the number was only 90,000.

It is true that I have assumed equality of vital conditions: whereas in fact, there were two alterations; marked sanitary improvement, and a diminution in the rate of increase. It is probable therefore, that the birth-rate was less during the second decade than during the first: but it is highly improbable that the birth-rate should be so reduced that the greater population should absolutely have fewer births by 5,000.

The calculation as to Manchester confirms this opinion. There too, we find both sanitary improvement and a reduced rate of increase. But the registered births, instead of being *absolutely* fewer during the second decade, were more by 14,000: and the birth-*rate* during the second decade exceeded that during the first.

I put a few towns together.

| | During Second Decade. | |
|---|---|---|
| | Excess of Registered Births. | Deficiency of Same. |
| | Per cnt. | Per cnt. |
| England and Wales | 5 | — |
| Manchester | 5 | — |
| London | 7 | — |
| Birmingham | 10 | — |
| Brighton | 14 | — |
| Gateshead | 18 | — |
| Leeds | — | ½ |
| Cheltenham | — | 11 |
| Liverpool | — | 15 |

I cannot resist these conclusions:—that the registration of Liverpool has been very ill conducted; and that the census of Liverpool, instead of being unusually accurate, was at least as deficient as that taken elsewhere.

As to other towns I will first estimate the correctness of the registration of *deaths*. In columns 15 to 18 I have calculated how many deaths there ought to have been from 1851-60, on the supposition of an unchanged sanitary condition. Judging by this standard, I find that England and Wales registered too few deaths by ½ per cent.: the district of York by the same; London and Macclesfield by 4 per cent.; Manchester, Leicester and Plymouth by 5 per cent.; Salford, Cheltenham, Chester, and Coventry by 6 per cent.; Bristol by 7 per cent.; Bath and Portsmouth by 8 per cent. The greatest of these reductions, about one-twelfth part, indicates a diminution in the death-rate of about two persons to a population of 1,000. But in two other towns the variation was far larger: viz., Liverpool with a reduction of 15 per cent., or 6 to 1,000 of population; and Hull with a reduction of 20 per cent, or 6 to 1,000 of population. We know however, that the sanitary condition of both these towns was far more favourable in the second decade; because the cholera in both of the towns, and the Irish famine also in Liverpool, greatly swelled the lists of deaths from 1841-50.

There are some towns in which the registered deaths *exceed* the calculated number: viz., Bolton and Derby by less than 1 per cent.; Birmingham and Wolverhampton by 1 per cent.; Newcastle-on-Tyne, Stockport, and Sunderland by 2 per cent.; Bradford and Brighton by 3 per cent.; Norwich by 4 per cent.; Blackburn, Gateshead, and Nottingham by 5 per cent.; Yarmouth by 6 per cent.; Sheffield and Southampton by 7 per cent.; Preston by 8 per cent. This last 8 per cent. is equivalent to an increase of the death-rate by 2 in 1,000 of population: *i.e.*, Preston from 1841-50 lost 25 to every 1,000 of population, and from 1851-60 lost 27. These deteriorations may easily be regarded as caused by temporary fluctuations of sanitary condition; and though they caused surprise when I stated them in my paper last year, they did not lead anyone, as far as I know, to question the accuracy of the death-register or of the census. Since that time, further investigation has raised doubts in my own mind: not as to the accuracy of the death-register, but as to the accuracy of the census, by means of which the death-*rate* is calculated.

*Marriages.*—I will next consider the marriages. Here we might have anticipated great regularity; because we know that the English marriage law has been very strict since the time of George II.; and that no relaxation has taken place by means of the Act establishing the register.

I have already mentioned that for all England and Wales, the registered marriages in proportion to average population, were more numerous in the second decade than in the first by 6 per cent. But

if we expect to find the same variation in each district, we shall be much disappointed.

In Salford from 1841-50 there were only 834 marriages in 10 years, or 83 a-year: from 1851-60, allowing for increase of average population, they should have been 1,029: they were 4,163; or four times as many. In Stockport they were too many by one-half. In Manchester, Bristol, Hull, and Portsmouth, they were too few.

The explanation is simple. In many places, new churches have been built, and new ecclesiastical districts have been formed. In all places, many young people choose to be married in a church outside of their own parish. I have known thousands of such cases. But a change of the incumbent of a church leads sometimes to increased strictness as to publication of banns, and then the stream of marriages is diverted into another channel.

It seems therefore, that we can learn nothing from the columns respecting marriages.

*Births.*—I now come to the birth columns; and it is for the sake of these that I have discussed the others.

We have seen that the registered deaths throughout England, during the second decade, were fewer by ½ per cent. than they should have been, if the sanitary conditions had been unchanged. The marriages were better registered by 6 per cent., supposing that the real marriage-rate was unchanged: the births were also better registered by 6 per cent., supposing that the real birth-rate in proportion to population was unchanged.

In London, the registered births during the second decade were out of proportion to the population by 7 per cent. In most of the towns in my list, there is also an excess, but in different degrees. In Bolton and Macclesfield it is under 1 per cent.; in Bristol and Yarmouth it is 2 per cent.; in Blackburn 2½; in Plymouth 3; in Stockport 4; in Bradford and Manchester 5; in Preston 7; in Hull 8; in Birmingham, Newcastle-on-Tyne, and York 10; in Sheffield 11; in Coventry and Derby 12; in Nottingham 13; in Brighton 14; in Gateshead and Sunderland 15; in Wolverhampton 18; in Chester 19; in Norwich 23; in Southampton 27 per cent.

If the marriage register for each place could be relied on, we should compare the birth-register with it. As this is not so, the only comparison we can make, is the excess of births and the rate of increase in population. We see that Southampton had an excess of births by 27 per cent.: it was also a fast increasing town. But then, other towns though increasing as fast, had not the same excess of births: while Bristol and Norwich, with a large excess of births, had only a moderate increase of population. Probably therefore, during the first decade, the births were *very* imperfectly registered

in Southampton, Norwich, and Chester, and were imperfectly registered in many other places.

There are on my list only six towns in which the birth-register was proportionately *less* in the second decade than in the first. The falling off was in Leicester ½ per cent.; Portsmouth 1; Salford 2; Bath 8; Cheltenham 11; Liverpool 14 per cent.

The deficiency in the three last towns is large, and also confirmatory of previous inferences: for referring to Table L, we find that in all three, the registered births are very few in proportion to the number of married women; viz. in Bath 264, in Cheltenham 271, in Liverpool 252, against 299 in all England and 343 in Blackburn.

But the case of Liverpool is the most remarkable. It will be remembered that it is the only town in Table L, where the census gives *more* infants than the calculated number; while all England shows a *deficiency* of 12 per cent., and some towns a deficiency of 11, 17, 24, and even 31 per cent. I inferred before, that it was not true that the census of Liverpool was well taken, but that the birth-register of Liverpool was badly kept. The Table N before us, strengthens this conviction of the imperfection of the birth-register: since we find that in the second decade there were 14,000 fewer births registered than there should have been in comparison with the first decade; a reduction quite inexplicable by any circumstances but a laxity of registration.

The difference between Liverpool and Cheltenham is this:—that on the supposition of an accurate birth-register, the census of infants was taken accurately in Liverpool, but was deficient in Cheltenham by 18 per cent.

I contend therefore, that Table N confirms my distrust of register and census: that it shows a great variation in the success of the various local officers: and that whatever may be our estimate of the amount of the census deficiency throughout the country, we must be convinced that there is a large deficiency in certain towns. I do not affect to pronounce what numbers the census ought to have shown: I only maintain that I have established the necessity for a more exact inquiry. Nor will I decide how far the local registrars have failed in their duties: I only press upon the Registrar-General the duty of investigating the proceedings of his subordinates, in places where the registered birth-rate in proportion to married women is much below the ordinary standard, and in places where the second decade shows a great falling off in registered births.

### *Recapitulation.*

In a discussion so perplexed, it is desirable to bring together in a moderate compass, all the arguments I have used.

*Table* D.—I began this paper by referring to the one I read last year, and particularly to a disputed question as to the mortality of infants. The question is this. Assume that of 1,000 infants born in 1860, there die 160 during the first year of *life;* also that the births occur at regular intervals during 1860: how many will die between the 1st January and the 31st December 1860? On the 31st December 1860, these infants have on the average been exposed to the risk of death during six months, and have on the average to be exposed, during 1861, to the risk of death during six months more. It has been erroneously inferred, that there would be 80 deaths during 1860, and 80 during 1861. The mistake is founded on the supposition that the rate of mortality would be the same in 1860 and in 1861. Now in 1861, no infant is exposed to the risk of death during its first day, but in 1860 all the infants are so exposed: in 1861 very few are exposed during the first week, but in 1860 nearly all are so: in 1861, only a few are exposed during the first month, but in 1860 the greater part are so. The most dangerous portions of life are passed in 1860; and therefore the deaths will be more than 80 in 1860, and less than 80 in 1861.

Table D proves that out of 160 deaths in the first year of life, the first month has 50, the second month 18, and the last month 7.

*Table* E.—In my next table, I calculate *more exactly*, how many of the 160 deaths would occur in 1860 and how many in 1861: I find that the proportions would be 105 and 55, or very nearly two to one. About two-thirds of the 160 deaths will take place in 1860.

By means of this proportion we can pass from the death-rate of the Registrar-General, to the death-rate calculated from the births. The death-rate of the Registrar-General is the proportion of deaths to infants *left alive:* the other death-rate is the proportion of deaths to *births*. Suppose 179 have died and 1,000 are left alive; the Registrar-General's death-rate is $\frac{179}{1000}$; the other death-rate is $\frac{179}{1000 + \frac{2}{3} \cdot 179} = 160$ (nearly): so that if in a particular place, 179 infants under 1 have died and 1,000 remain alive, we may conclude that out of 1,000 born 160 die in the first year of life.

But when I apply this formula to the Registrar-General's death-rate, and compare the result with that calculated directly from the births and deaths, I find a marked disagreement: I discover that the *inaccurate* formula $\frac{179}{1000+179}$, gives a result much nearer the truth. I infer that the Register and the Census cannot both be right.

I proceed to inquire where the errors are. In doing this, I take the following propositions as my basis.

1. The registry of deaths may be regarded as accurate.

2. The Census of 1851 and that of 1861, were probably taken with about equal care and accuracy.

3. The register of births during the second decade (1851-60), was deficient *on the average* of the country by $7\frac{1}{2}$ per cent.

4. I give reasons for an opinion that the register of births during the first decade, was deficient on the average by $12\frac{1}{2}$ per cent.; or by 5 per cent. more than during the first decade. But this is subject to the question whether the real birth-rate in the second decade was not higher than that in the first decade.

*Tables* F and G.—Having laid down these four fundamental propositions, I proceed to show that in the last census, there were the following omissions of infants under 1 year old,

| | | |
|---|---|---|
| Boys ..... | 36,000 | or 12 per cent. |
| Girls ..... | 31,000 | „ $10\frac{1}{2}$ „ |
| | 67,000 | |

I arrive at these figures by ascertaining the number born in 1860, and deducting the proportion of those who died in 1860. (Not deducting all the deaths under 1 during 1860, but about two-thirds of these). The resulting number is, as I mention above, 67,000 above the census number. The possible emigration is so small that it may be disregarded.

The calculation is so simple, that I can hardly doubt the deficiency of the census to be very large. It is not uniform in the great divisions of the country; but amounts apparently to 18 per cent. of boys in Wales, and to only 7 per cent. in London: though I afterwards assign reasons for believing that the London deficiency is much higher, through great irregularities in registering the births.

After explaining the construction of these Tables F and G more in detail, I go on to argue that from the rapid way in which the census must be taken, errors are inevitable; and that these will be generally on the side of omission; especially on the part of the most numerous classes, because they write with difficulty, or trust to neighbours who are equally inexpert. Some papers also, are overlooked: and allowing for these, the omission of one infant in a hundred families is all that is required; besides that some infants in their first year, are put down as 1 year old.

The fact that the apparent deficiency of boys is 12 per cent. and of girls only $10\frac{1}{2}$ per cent. (a difference found also in Scotland) I explain conjecturally. The deficiency is found by comparing the birth-register with the census. Any circumstance which swells the birth-register, increases the apparent deficiency. But it is probable that parents are in many instances more careful about the registering of boys than of girls: whereas it is absurd to suppose that they

are more careful in enumerating female infants than male infants; and this both in England and Scotland.

*Tables* H and I.—My calculation so far, having been simple, and as I think conclusive, I am led to extend my inquiry to other ages. The registers enable me to reach all persons under 20; *i.e.*, nearly half the population.

The results are these (on the supposition that the real birth-rate was the same in the first and second decades) :—that the census deficiency among all persons from birth to under 20 years old, was 515,278, or more than $5\frac{1}{2}$ per cent.; and that if we assume the same circumstances for the population above 20 years old, the total census deficiency would be 1,100,000. There are reasons however, for reducing this number considerably. First, I do not think it true that the real birth-rate was as low in the second decade as in the first; because I find that in the second decade there were, proportionately to population, more married women from 20 to 45 than there were in the first decade. Secondly, the census population which I have dealt with, does not include the army and navy, and such of these as are under 20 ought to be subtracted from the deficiency.

*Ireland and Scotland.*—Ireland has only lately had a register.* That of Scotland is too recent to teach us much: but by comparing it with the census, we learn that the enumeration of infants under 1 is more defective than in England. This however, is subject to the doubt whether the Scottish birth-registration, though lately begun, and applied to a rather scattered population outside the towns, is not more complete than the English. I have added 6 per cent. for omissions as in England: possibly this is too much.

There is the same comparative difference between boys and girls, as in England: the deficiency in boys being 14 per cent., and the deficiency in girls $12\frac{1}{2}$ per cent. I presume that in both countries, this difference is caused by a superior registration of boys, and not by a superior enumeration of girls.

*Table* K. *Counties.*—Of the previous tables, three have reference to all England and Wales; two to the eleven great divisions of England and Wales. My next table, K, has reference to each county separately; reckoning London, North Wales, South Wales, and the three Ridings, each as a county. The investigation is confined to infants under 1 year old, to avoid the disturbance caused by migration and emigration. I take the case of boys only.

I find that the apparent census deficiency varies greatly; being for Middlesex (extra metropolitan) only $6\frac{1}{2}$ per cent. (something less than for London); and going up to 20 per cent. in Notts, and 21 per cent. in Monmouthshire.

* See the Quarterly Tables in this and the preceding number of the *Journal.* —ED. *S. J.*

But I give reasons for believing that further investigation is necessary. I measure the census by the births minus the deaths of the year 1860: the deaths I take as accurately registered: the births for all England and Wales in 1860, I estimate to be inadequately registered by 6 per cent.; but it is improbable that the imperfection should be uniform thoughout the counties.

I tried three modes of correcting the birth-register: 1, a comparison of births with marriages; 2, a comparison of births with population; 3, a comparison of births with married women from 20 to 45 years old: a notion I borrowed from Messrs. Danson and Welton. The two first I found useless: I adopted the third mode.

The number of registered births during the second decade, to 100 married women from 20 to 45 years old, was for all England and Wales nearly 300 (299); for London only 270; for Durham so high as 358. I suspect therefore, that the birth-register is very ill-kept in London: and I am confirmed in this opinion by Table L, where I find that great towns had generally a registered birth-rate above, and not as London, much below, that of all England: nor can I admit the corruption of a great metropolis as an explanation of a rate so low as 270, when I find that the extra metropolitan parts both of Middlesex and of Surrey are all but as low in the register (273 and 271). I have therefore, little doubt, that both the birth-register and the census of London are defective. I equally suspect those of Middlesex and Surrey (extra metropolitan); and I regard those of Sussex and Devon with much suspicion.

I am not so clear about other counties, because their birth-register is not so low as to be certainly wrong. But Table K on the whole, confirms my doubts as to the accuracy both of register and census.

*Table* L—does for the towns, what Table K has done for the counties. The most remarkable cases in it are those of Liverpool and Hull, where the census appears about correct, but where the registered birth-rate is so low as to be untrustworthy; and where therefore, the accuracy of the census is only apparent. Coventry on the other hand, has a census of great apparent incorrectness: nor can I believe that a town in a state of chronic distress, possessed on the 1st January 1861, more infants than were born there.

*Table* M—which goes through the same process for several districts of London, leads me to the same conclusions that I arrived at before.

*Table* N.—These suspicions are of so grave a character, that I have felt bound to use other means to test the grounds on which they rest. I have therefore made a comparison of some of the registers of the two decades; and I have preferred the town districts as being each under the superintendence of one registrar. If we find

that in certain towns, the number of registered births has not increased in anything like proportion to the increase of population, and if these are the very towns which we before suspected of an imperfect registry, we shall have a confirmation of our ill-opinion of the local officers.

I have before made this comparison for all England: I have shown that comparing the two decades, the registered death-rate was nearly the same; 2nd, that the registered marriage-rate was higher in the second decade by about 6 per cent.; 3rd, that the registered birth-rate was higher in the second decade by about 6 per cent. I have framed my tables on the supposition that the increase of registered marriage-rate and birth-rate was merely the result of better registration: because the population did not increase faster in the second decade than in the first, as it should have done if more births, and no more deaths, had occurred; and because the emigration records do not* enable us to say that more persons of English origin left the country in the second decade than in the first. I have however, found that at the close of the second decade, there were in proportion to the whole population, more married women from 20 to 45 years old than there were at the close of the first decade: and this has modified my opinion, and has led me to suspect that the omissions in the census are more numerous among persons under 20 years old than above that age; and more numerous still among children.

I now make this comparison for the towns separately. If my previous opinions are to be confirmed, we ought to find that the registered birth-rate of Liverpool was worse in the second decade than in the first. This really was so, and the difference was very large. During the second decade, the registered births were fewer than the calculated number, by no less than 14,000, or 15 per cent. It is possible that the real birth-rate was lower, because the rate of increase of the population had diminished: but as we find no other town with such a falling off of births, and no other *great* town with any considerable falling off, we must believe that the main difference was one of registration.

In most instances there was an *increase* in the registered birth-rate during the second decade.

| | | | |
|---|---|---|---|
| Manchester had an increase of | ..... | 5 | per cent. |
| Birmingham | ,, ..... | 10 | ,, |
| Nottingham | ,, ..... | 13 | ,, |
| Chester | ,, ..... | 19 | ,, |
| Southampton | ,, ..... | 27 | ,, |

* Merivale's "Colonization," p. 165.

Whereas—

| | | | |
|---|---|---|---|
| Liverpool *fell off* by | ..... | 15 | per cent. |
| Cheltenham | „ ..... | 11 | „ |
| Bath | „ ..... | 8 | „ |
| Salford | „ ..... | 2 | „ |
| Portsmouth | „ ..... | 1 | „ |
| Leicester | „ ..... | ½ | „ |

Table N therefore, confirms my opinions, that the birth-register is not to be implicitly trusted; and that its inaccuracy is in some towns very great.

*Inference.*—I infer from this tedious inquiry, that there are grounds for seriously doubting the accuracy both of birth-register and of census. But I do not conceive that we ought to rest satisfied with these suspicions. We have been accustomed to regard the census as accurate, and the birth-register as uniformly inaccurate within certain known limits. If I have really shown reasons for suspecting that the census is generally inaccurate, and very much so in particular places; and if my suspicions are well founded as to the birth-register of particular places, we ought not to stop here: but we ought to consider whether there exist any means of satisfying our doubts, and of either amending these documents, or of restoring our confidence in them if they require no amendment.

*Remedies. Birth-register.*—The Registrar-General has always lamented his want of power to enforce the registration of births. I hope this paper may supply him with additional arguments in favour of his demand for penalties on negligent parents. As regards particular districts, if he shares my suspicions, he has, no doubt, the means which are open to all superior officers, of investigating the proceedings of subordinates.

The amendment of the census is not so easy. No new penalties, and no enforcement of penalties, would be of much avail. Births are taking place every day, in every street: one penalty enforced, would awake a whole neighbourhood; and the habit of registering once formed, would easily be kept up. But the census comes only once in ten years, and penalties levied in 1861, would be forgotten by 1871.

The employment of two sets of enumerators has been suggested. I fear that the result would be inextricable confusion. The errors arise from the rapidity of the process, and from the inaccuracy of parents. The rapidity is necessary with a population like ours, which travels much: the inaccuracy can be only slowly mitigated, by an improvement in education. It has to be remembered too, that what we want to know, is more the rate of increase than the absolute numbers; and that any considerable improvement in accuracy, would vitiate the comparison of different periods. If

we could satisfy ourselves of the degree of inaccuracy, we could then add the omitted numbers.

I recommend that the next census should be taken as the last was: that tables such as my K and L, should be constructed immediately afterwards; and that the suspicious returns should be reinvestigated at once, by persons going round with the papers which had been filled up and returned. With the original depositions in their hands, these visitors would easily judge the cases, and determine what omissions had been made. At the same time, they might test the register by inquiring what births had taken place during the ten years.

It is not too late even now to do something with respect to the Census of 1861; for the apparent deficiency is in some instances so large, that any probable increase of population in four years, might be safely allowed for. There is Leicester, *e.g.*, with only 68,000 souls enumerated in 1861: where, if the enumeration of people generally was as deficient as that of infants, the numbers ought to be 88,000; and where at any rate it must probably be far above 68,000. The recorded rate of increase was only 12 per cent.; and whether this was 12, 15, or 20 per cent., an approximate allowance might be made for it. Cheltenham, Coventry, and Macclesfield, are also of moderate dimensions, and apparently much underrated. The new census might be tried first in these smaller places: afterwards, if anything important accrued, it might be extended to Nottingham, Leicester, Hull, and Liverpool.

*Inferences as to Rates of Mortality:*—If the Census of 1861 was really as inaccurate as it appears, then the death-rates were different from those at present calculated. The death-rate of any place is commonly stated to 1,000 of population; and is

$$\frac{\text{the No. of deaths} \times 1000}{\text{Population enumerated}}.$$

But if the population is really greater than that of the census by 5 per cent. (suppose), the death-rate falls by about 5 per cent., and the national death-rate falls from $\frac{22{\cdot}24}{1000}$ to $\frac{21{\cdot}18}{1000}$.

But in particular districts the difference might be far greater. Liverpool parish from 1851-60, had an apparent death-rate of 33; but if we can imagine its population to have been greater by one-fifteenth than the census makes it, the death-rate will have been only 31, a lower one than that of Manchester. Then as to infant mortality, the scandal is mitigated: for if we suppose the births to have been one-seventh more than those registered, the death-rate of infants under 1 falls from $\frac{240}{1000}$ to $\frac{206}{1000}$, which is about that of the other Lancashire towns. Even the death-rate of children under 5 is lessened; being reduced from $\frac{467}{1000}$ to $\frac{400}{1000}$, a

rate frightfully high, yet very far from that $\frac{500}{1000}$, or one-half, which inaccurate philanthropists will attribute to large towns generally.

Hull by a similar correction, might come out as a healthy town.

Light is also thrown on the perplexing fact, that some towns have failed to improve in health, or have even deteriorated, notwithstanding a large outlay on sanitary improvements. Nottingham, *e.g.*, has drained and cleansed itself; and yet the recorded death-rate of the second decade was higher than that of the first. But judged by Table L, the 1861 Census of Nottingham was inefficiently taken; and if that of 1851 was better taken, the mortality may have really diminished.

*Inference as to the Disproportion of Male and Female Births.*—Some evidence offers itself as to the proportionate numbers of births in the two sexes. These have always seemed to vary greatly in different counties; and it has been taken for granted that the birth-registers are everywhere to be trusted for this comparison: but if we believe that in England and Scotland the boys are better registered than the girls, we shall be disposed to inquire whether there is the same distinction elsewhere; and we shall cease to wonder that the births of boys to those of 100 girls are stated at 104 in one country and at 106 in another.* Our doubts will be increased by the example of Scotland; where we find the Registrar reporting,* that the boys' average births were to the girls as $\frac{105}{100}$; but that while in the mainland rural districts they were 106, only $103\frac{1}{2}$ were found in the towns. As the same difference between town and country has been found in other parts of Europe, an ingenious Frenchman has suggested that a physical deterioration of the town parents may cause an excess of female births. But it is far more likely that the difference is one of registration; and that the better registration of boys occurs most in the rural districts, where succession to real estate is more in parents' thoughts.

*Inference as to Disproportion among the Illegitimate.*—Another problem may perhaps be solved. It has been noticed in Prussia, that among illegitimate children, there is not the same disproportion of the sexes that there is among legitimate children:† *i.e.*, that proportionately, illegitimate children have more females among them than legitimate children have. The same is true of France, while in Scotland the reverse has been observed. After all, may not the difference be one of registration? In Prussia, may not mothers be more solicitous about the registry of legitimate boys than of illegitimate ones? or more solicitous about the registry of illegitimate girls than of legitimate ones? Or, in the Islands of Scotland, may not the hope of a subsequent declaration of marriage, make mothers

* "Annals British Legislation," 67, 182 (358).

† *Statistical Journal*, vol. xxiii, p. 302, and vol. xxv, p. 244.

unusually exact in the registry of illegitimate boys? These facts should be carefully ascertained before further discussion is allowed of the causes of the alleged phenomena.

*Inference as the extent of Illegitimacy.*—Our knowledge of the numbers of illegitimate children, is derived from the Registrar-General's reports. I mentioned in a former paper, the assurance I had received from two very competent registrars, that the mothers of illegitimate children are careful in registering the births, as a supposed evidence of paternity. Nevertheless, most persons look with suspicion at the returns which make the base-born in London fewer in proportion than those of the whole country. There was indeed, a paper lately presented [22nd February 1861 (55)] to the House of Commons,* which shows that the summonses in bastardy from 1845 to 1859, were fewer in the whole of Middlesex than in any other county except Cornwall; and far fewer than in most other counties. It would be more satisfactory however, to obtain a trustworthy registration of Middlesex births generally.

In conclusion, I must beg not to be misunderstood as to the value I set on the calculations I have made. I have a high respect for the legal rule, that every case must be supported by the best evidence obtainable. The best evidence in the case of the census, is a fresh enumeration of suspected districts: the best evidence in the case of the birth-register, is a close investigation of the proceedings of the local registrars in districts where the fruitfulness of married women appears unusually low. All that I claim to have done, is to have raised so strong a presumption of error both in census and register, as to call for careful inquiry.

NOTE.—The census contains such a multitude of particulars, that it is unavoidably complex; and it is not easy to find any information required. A more elaborate index would be of great service. A town should be mentioned in every place where it occurs. I know a case in which a person desired to ascertain the number of children in Bath under 1 year old: after searching diligently he gave up the inquiry. A fuller index would have taken him at once to what he wanted.

Another trifling addition would be highly valuable. The most extraordinary feature of our modern population, is the growth of the towns: in less than a hundred years, the three greatest English towns (after London), have increased at least tenfold. Inquirers therefore, often want to trace the growth from 1801 to 1861; but they find that while the *county* census is given for each enumeration (I, xiv), the same thing is not done for the *towns*, nor even for the principal of them. To find the growth of Liverpool or Leeds, we must turn over half a dozen volumes.†

* "Annals British Legislation," 52, 166 (102).

† I find that this information is given in the third volume, p. 103. I trust that in 1871, it will be found in its right place, among the "Summary Tables" at the beginning of the first volume.

# APPENDIX.

I have headed these Tables D to N, to follow the Tables A to C of my paper printed last year in *Statistical Journal*, vol. xxvii, p. 170.

TABLE D.—*Calculation of the Number of Male Infants who Die during* EACH *of the First* TWELVE MONTHS *after Birth, assuming that* 160 *Die during* ALL *the Twelve Months. Registrar-General*, iii, 59.

| | Number of Months. | Total Deaths. | For each Month. | Proportion for each Month of Life. | Proportion out of a Total of 160. |
|---|---|---|---|---|---|
| | | | | Per cent. of whole. | |
| Under 1 month ..... | 1 | 13,274 | same | 31·01 | 50 |
| Over 1 and under 2 months | 1 | 4,782 | „ | 11·17 | 18 |
| „ 2 „ 3 „ | 1 | 3,521 | „ | 8·23 | 13 |
| „ 3 „ 6 „ | 3 | 8,344 | 2,781 | 6·50<br>(6·50)<br>(6·50) | 31 |
| Over 6 and under 9 months | 3 | 6,717 | 2,239 | 5·23<br>(5·23)<br>(5·23) | 25 |
| Over 9 and under 12 months | 3 | 6,162 | 2,054 | 4·80<br>(4·80)<br>(4·80) | 23 |
| | 12 | 42,800 | — | 100· | 160 |

*Note.*—Out of 42,800 deaths during one year, of infants under 1 year old, the deaths in the first month are 31 per cent. or nearly one-third.

TABLE E.—*Calculation of the Number of Male Infants who Die in the First and Second* CALENDAR *Years respectively, out of those Born during the First Calendar Year, at the Rate of* 1,000 *a-day; on the Supposition that* 160 *Die during the First Year* OF LIFE.

| Date of Births (inclusive). | First Year. | | | | | Second Year. | | | |
|---|---|---|---|---|---|---|---|---|---|
| | Births. | Average Time during which Exposed. | Average Age during Exposure. | Deaths per 1,000. | Aggregate Deaths. | Average Time during which Exposed. | Average Age during Exposure. | Deaths per 1,000. | Aggregate Deaths. |
| | | Months. | Months. | | | Days. | Months. | | |
| Jan. 1 to 15 ..... | 15,000 | $11\frac{3}{4}$ | 0 to $11\frac{3}{4}$ | 158 | 2,370 | 7 | $11\frac{3}{4}$ to 12 | 2 | 30 |
| | | | | | | Months. | | | |
| Jan. 16 to Feb. 14 | 30,000 | 11 | 0 „ 11 | 152 | 4,560 | 1 | 11 „ 12 | 8 | 240 |
| Feb. 15 „ Mch. 15 | 29,000 | 10 | 0 „ 10 | 144 | 4,176 | 2 | 10 „ 12 | 16 | 464 |
| Mch. 16 „ Apl. 15 | 31,000 | 9 | 0 „ 9 | 136 | 4,216 | 3 | 9 „ 12 | 24 | 744 |
| Apl. 16 „ May 15 | 30,000 | 8 | 0 „ 8 | 128 | 3,840 | 4 | 8 „ 12 | 32 | 960 |
| May 16 „ June 15 | 31,000 | 7 | 0 „ 7 | 120 | 3,720 | 5 | 7 „ 12 | 40 | 1,240 |
| June 16 „ July 15 | 30,000 | 6 | 0 „ 6 | 112 | 3,360 | 6 | 6 „ 12 | 48 | 1,440 |
| July 16 „ Aug. 15 | 31,000 | 5 | 0 „ 5 | 102 | 3,162 | 7 | 5 „ 12 | 58 | 1,798 |
| Aug. 16 „ Sept. 15 | 31,000 | 4 | 0 „ 4 | 91 | 2,821 | 8 | 4 „ 12 | 69 | 2,139 |
| Sept. 16 „ Oct. 15 | 30,000 | 3 | 0 „ 3 | 80 | 2,400 | 9 | 3 „ 12 | 80 | 2,400 |
| Oct. 16 „ Nov. 15 | 31,000 | 2 | 0 „ 2 | 67 | 2,077 | 10 | 2 „ 12 | 93 | 2,883 |
| Nov. 16 „ Dec. 15 | 30,000 | 1 | 0 „ 1 | 50 | 1,500 | 11 | 1 „ 12 | 110 | 3,300 |
| Dec. 16 „ Dec. 31 | 16,000 | — | 0 to 7 days | 14 | 224 | $11\frac{3}{4}$ | 7 dys. to 12 m. | 146 | 2,336 |
| | 365,000 | 7 days | $\frac{38426}{365\text{ m}} = 105$ | 1,354 | 38,426 | — | $\frac{19974}{365\text{ m}} = 55$ | 726 | 19,974 |

TABLE F.—*Apparent Deficiency in the* 1861 *Census, of* MALE *Infants under One Year Old; in each of the Eleven Divisions of England and Wales. No allowance is made for Emigration or Immigration.*

| 1 Order of Demerit. | 2 —— | 3 Births, 1860, plus 6 per Cent. | 4 Deaths under 1, 1860. | 5 One-third Deaths under 1, 1859. | 6 Calculated Population viz., Column 3 Minus 4 Plus 5. | 7 Census to 1st January, 1861. | 8 Deficiency. | 9 Rate per Cent. of Deficiency. |
|---|---|---|---|---|---|---|---|---|
| — | England and Wales .... | 370,787 | 56,892 | 19,644 | 333,539 | 296,993 | 36,546 | 12 |
| 1 | Wales & Monmouthsh. | 24,074 | 3,305 | 1,109 | 21,878 | 18,592 | 3,286 | 18 |
| 2 | North-Midland ..... | 24,194 | 3,850 | 1,428 | 21,772 | 18,812 | 2,960 | 15 |
| 3 | Northern ..... | 22,982 | 3,261 | 1,121 | 20,842 | 18,198 | 2,644 | 15 |
| 4 | South-Midland ..... | 23,344 | 3,627 | 1,269 | 20,986 | 18,394 | 2,592 | 14 |
| 5 | York ..... | 39,899 | 6,678 | 2,222 | 35,443 | 31,102 | 4,341 | 14 |
| 6 | West-Midland..... | 47,280 | 7,301 | 2,629 | 42,608 | 37,483 | 5,125 | 14 |
| 7 | South-Western ..... | 31,021 | 4,066 | 1,455 | 28,410 | 25,132 | 3,278 | 13 |
| 8 | Eastern ..... | 19,745 | 3,071 | 1,105 | 17,779 | 15,783 | 1,996 | 12 |
| 9 | South-Eastern..... | 30,567 | 3,935 | 1,371 | 28,003 | 25,393 | 2,610 | 10 |
| 10 | North-Western ..... | 57,178 | 9,897 | 3,347 | 50,628 | 45,969 | 4,659 | 10 |
| 11 | London ..... | 50,503 | 7,901 | 2,588 | 45,190 | 42,135 | 3,055 | 7 |
| | | 370,787 | 56,892 | 19,644 | 333,539 | 296,993 | 36,546 | — |

TABLE G.—*Apparent Deficiency in the* 1861 *Census, of* FEMALE *Infants under One Year Old; in each of the Eleven Divisions of England and Wales. No allowance is made for Emigration or Immigration. (Same as* F, *but for Females.)*

| 1 Order of Demerit as to Males. | 2 —— | 3 Births, 1860, plus 6 per Cent. | 4 Deaths under 1, 1860. | 5 One-third Deaths under 1, 1859. | 6 Calculated Population viz., Column 3, Minus 4 Plus 5. | 7 Census to 1st January, 1861. | 8 Deficiency. | 9 Rate per Cent. of Deficiency. |
|---|---|---|---|---|---|---|---|---|
| — | England and Wales ... | 354,304 | 44,092 | 15,566 | 325,778 | 294,947 | 30,831 | 10½ |
| 1 | Wales & Monmouthsh. | 23,050 | 2,610 | 890 | 21,330 | 18,612 | 2,718 | 15 |
| 2 | North-Midland ..... | 23,216 | 2,804 | 1,090 | 21,502 | 18,963 | 2,539 | 13 |
| 3 | Northern ..... | 21,966 | 2,638 | 934 | 20,262 | 17,938 | 2,324 | 13 |
| 4 | South-Midland ..... | 21,907 | 2,680 | 979 | 20,206 | 18,062 | 2,144 | 12 |
| 5 | Yorkshire..... | 37,996 | 5,236 | 1,719 | 34,479 | 31,018 | 3,461 | 11 |
| 6 | West-Midland..... | 45,161 | 5,596 | 2,063 | 41,628 | 37,100 | 4,528 | 12 |
| 7 | South-Western ..... | 29,764 | 3,078 | 1,148 | 27,834 | 24,866 | 2,968 | 12 |
| 8 | Eastern ..... | 18,926 | 2,379 | 845 | 17,392 | 15,599 | 1,793 | 11 |
| 9 | South-Eastern..... | 29,056 | 3,034 | 1,126 | 27,148 | 25,164 | 1,984 | 8 |
| 10 | North-Western ..... | 54,746 | 7,669 | 2,701 | 49,778 | 45,523 | 4,255 | 9 |
| 11 | London ..... | 48,516 | 6,368 | 2,071 | 44,219 | 42,102 | 2,117 | 5 |
| | | 354,304 | 44,092 | 15,566 | 325,778 | 294,947 | 30,831 | — |

TABLE H.—*Apparent Deficiency in the* 1861 *Census,*

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|
| | Registered Births. | | | Deaths. | | | |
| Year of Life. | — | Plus 6 to 13 per Cent. | | — | Year of Age. | — | Emigration. |
| 0 | 1860 | 6 | 370,786 | 1860 | 0 | 56,892 | 435 |
| 1 | '59 | — | 373,822 | 1859-60 | 0 and 1 | 76,229 | 870 |
| 2 | '58 | — | 355,287 | '58-60 | 0 to 2 | 84,751 | 1,305 |
| 3 | '57 | — | 360,398 | '57-60 | 0 „ 3 | 91,122 | 1,740 |
| 4 | '56 | — | 355,674 | '56-60 | 0 „ 4 | 91,182 | 2,175 |
| 5 | 1855 | 9 | 353,116 | 1855-60 | 0 to 5 | 92,735 | 2,610 |
| 6 | '54 | — | 353,236 | '54-60 | 0 „ 6 | 93,548 | 3,045 |
| 7 | '53 | — | 342,002 | '53-60 | 0 „ 7 | 97,742 | 3,480 |
| 8 | '52 | — | 347,766 | '52-60 | 0 „ 8 | 99,498 | 3,915 |
| 9 | '51 | — | 343,314 | '51-60 | 0 „ 9 | 98,416 | 4,350 |
| 10 | 1850 | 11½ | 337,659 | '50-60 | 0 to 10 | 92,713 | 4,785 |
| 11 | '49 | — | 329,099 | '49-60 | 0 „ 11 | 94,511 | 5,220 |
| 12 | '48 | — | 321,505 | '48-60 | 0 „ 12 | 91,987 | 5,655 |
| 13 | '47 | — | 307,357 | '47-60 | 0 „ 13 | 95,009 | 6,090 |
| 14 | '46 | — | 326,857 | '46-60 | 0 „ 14 | 101,755 | 6,525 |
| 15 | 1845 | 13 | 314,612 | 1845-60 | 0 to 15 | 96,102 | 7,525 |
| 16 | '44 | — | 313,502 | '44-60 | 0 „ 16 | 95,162 | 8,525 |
| 17 | '43 | — | 305,752 | '43-60 | 0 „ 17 | 93,176 | 9,525 |
| 18 | '42 | — | 299,680 | '42-60 | 0 „ 18 | 94,097 | 10,525 |
| 19 | '41 | — | 296,866 | '41-60 | 0 „ 19 | 93,121 | 11,525 |
| — | — | — | — | — | — | — | — |

*Note.*—In column 8, the emigration is estimated, without any deduction for immigration,

*of* MALES *in the First Twenty Years of Life.*

| 9 | 10 | 11 | 12 | 13 | 14 | 15 |
|---|---|---|---|---|---|---|
| One-third of Deaths. | | Calculated Population, viz., Column 4 Minus 7 and 8 Plus 10, to 1st January, 1861. | Census to 1st January, 1861. | Deficiency. | Proportion per Cent. of Column 13 to Column 12. | Totals. |
| Year of Age. | 1859. | | | | | |
| 0 | 19,644 | 333,103 | 296,993 | 36,110 | 12 | Per Cent. |
| 1 | 6,348 | 303,071 | 271,548 | 31,523 | 11½ | |
| 2 | 3,230 | 272,461 | 267,478 | 4,983 | 2 | $\frac{91,378}{1,350,845} = 6\frac{3}{4}$ |
| 3 | 2,169 | 269,705 | 258,260 | 11,445 | 4½ | |
| 4 | 1,566 | 263,883 | 256,566 | 7,317 | 3 | |
| 5 | 710 | 258,481 | 233,889 | 24,592 | — | |
| 6 | 710 | 257,353 | same | 23,464 | — | |
| 7 | 710 | 241,490 | ,, | 7,601 | — | $\frac{74,200}{1,169,444} = 6\frac{1}{4}$ |
| 8 | 710 | 245,063 | ,, | 11,174 | — | |
| 9 | 710 | 241,258 | ,, | 7,369 | — | |
| 10 | 333 | 240,494 | 211,343 | 29,151 | — | |
| 11 | 333 | 229,701 | same | 18,358 | — | |
| 12 | 333 | 224,196 | ,, | 12,853 | — | $\frac{63,177}{1,056,715} = 6$ |
| 13 | 333 | 206,591 | ,, | +4,752 | — | |
| 14 | 333 | 218,910 | ,, | 7,567 | — | |
| 15 | 405 | 211,390 | 191,013 | 20,377 | — | |
| 16 | 405 | 210,220 | same | 19,207 | — | |
| 17 | 405 | 203,456 | ,, | 12,443 | — | $\frac{58,089}{955,065} = 6$ |
| 18 | 405 | 195,463 | ,, | 4,450 | — | |
| 19 | 405 | 192,625 | ,, | 1,612 | — | |
| — | — | 4,818,914 | 4,532,070 | 291,596<br>less 4,752 | — | $\frac{286,844}{4,532,070} = 6{\cdot}3$ |
| | | | | 286,844 | | |

at 435 for each year of life up to 14; and at 1,000 from 15 to 19 inclusive.

TABLE I.—*Apparent Deficiency in the* 1861 *Census, of* FEMALES *in*

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|
| | Registered Births. | | | Deaths. | | | |
| Year of Life. | — | Plus 6 to 13 per Cent. | | — | Year of Age. | — | Emigration. |
| 0 | 1860 | 6 | 354,307 | 1860 | 0 | 44,092 | 435 |
| 1 | '59 | — | 357,472 | 1859-60 | 0 and 1 | 62,831 | 870 |
| 2 | '58 | — | 339,722 | '58-60 | 0 to 2 | 71,358 | 1,305 |
| 3 | '57 | — | 342,458 | '57-60 | 0 „ 3 | 78,681 | 1,740 |
| 4 | '56 | — | 341,227 | '56-60 | 0 „ 4 | 79,707 | 2,175 |
| 5 | 1855 | 9 | 339,027 | 1855-60 | 0 to 5 | 80,329 | 2,610 |
| 6 | '54 | — | 338,263 | '54-60 | 0 „ 6 | 81,745 | 3,045 |
| 7 | '53 | — | 325,511 | '53-60 | 0 „ 7 | 84,924 | 3,480 |
| 8 | '52 | — | 332,406 | '52-60 | 0 „ 8 | 86,480 | 3,915 |
| 9 | '51 | — | 327,974 | '51-60 | 0 „ 9 | 85,665 | 4,350 |
| 10 | 1850 | 11½ | 324,005 | 1850-60 | 0 to 10 | 81,769 | 4,785 |
| 11 | '49 | — | 315,546 | '49-60 | 0 „ 11 | 82,863 | 5,220 |
| 12 | '48 | — | 306,305 | '48-60 | 0 „ 12 | 80,279 | 5,655 |
| 13 | '47 | — | 294,702 | '47-60 | 0 „ 13 | 83,846 | 6,090 |
| 14 | '46 | — | 311,618 | '46-60 | 0 „ 14 | 89,984 | 6,525 |
| 15 | 1845 | 13 | 299,566 | 1845-60 | 0 to 15 | 84,945 | 7,525 |
| 16 | '44 | — | 297,559 | '44-60 | 0 „ 16 | 83,630 | 8,525 |
| 17 | '43 | — | 290,124 | '43-60 | 0 „ 17 | 82,716 | 9,525 |
| 18 | '42 | — | 285,365 | '42-60 | 0 „ 18 | 84,221 | 10,525 |
| 19 | '41 | — | 281,871 | '41-60 | 0 „ 19 | 84,301 | 11,525 |
| Total .... | — | — | — | — | — | — | — |

*Note.*—In column 8, the emigration is estimated, without any deduction for immigration,

*the First Twenty Years of Ltfe.* (*Same as* H, *but for Females.*)

| 9 | 10 | 11 | 12 | 13 | 14 | 15 |
|---|---|---|---|---|---|---|
| One-third of Deaths. | | Calculated Population, viz. Column 4 Minus 7 and 8 Plus 10. | Census to 1st January, 1861. | Deficiency. | Proportion per Cent. of Column 13 to Column 12. | Totals. |
| Year of Age. | 1859. | | | | | |
| 0 | 15,566 | 325,346 | 294,947 | 30,399 | 10½ | Per Cent. |
| 1 | 5,902 | 299,673 | 269,864 | 29,809 | 11 | |
| 2 | 3,168 | 270,227 | 266,896 | 3,331 | 1 | $\frac{78616}{1341839}=6$ |
| 3 | 2,199 | 264,236 | 256,488 | 7,748 | 3 | |
| 4 | 1,628 | 260,973 | 253,644 | 7,329 | 3 | |
| 5 | 718 | 256,806 | 233,519 | 23,287 | — | |
| 6 | 718 | 254,191 | same | 20,672 | — | |
| 7 | 718 | 237,825 | ,, | 4,306 | — | $\frac{62633}{1167595}=5\frac{1}{2}$ |
| 8 | 718 | 242,729 | ,, | 9,210 | — | |
| 9 | 718 | 238,677 | ,, | 5,158 | — | |
| 10 | 359 | 237,810 | 208,431 | 29,379 | — | |
| 11 | 359 | 227,822 | same | 19,391 | — | |
| 12 | 359 | 220,730 | ,, | 12,299 | — | $\frac{64800}{1042155}=6$ |
| 13 | 359 | 205,125 | ,, | + 3,306 | — | |
| 14 | 359 | 215,468 | ,, | 7,037 | — | |
| 15 | 458 | 207,554 | 194,358 | 13,196 | — | |
| 16 | 458 | 205,862 | same | 11,504 | — | |
| 17 | 458 | 198,341 | ,, | 3,983 | — | $\frac{17547}{971790}=2$ |
| 18 | 458 | 191,077 | ,, | + 3,281 | — | |
| 19 | 458 | 186,503 | ,, | + 7,855 | — | |
| — | — | 4,746,975 | 4,523,379 | 238,038<br>less 14,442<br>223,596 | — | $\frac{223596}{4523379}=5$ |

at 435 for each year of life up to 14, and at 1,000 from 15 to 19 inclusive.

TABLE K.—*Apparent Deficiency in the* 1861 *Census, of Male Infants under One Year Old; in each of the* COUNTIES *of England and Wales.*

| 1 Thousands. | 2 Increase per Cent. | 3 — | 4 Births, 1860, Plus 6 per Cent. | 5 Deaths, under 1, 1860. | 6 One-third Deaths under 1, 1859. | 7 Calculated Population, viz., Column 4 Minus 5 Plus 6. | 8 Census to 1st January, 1861. | 9 Deficiency. | 10 Deficiency per Cent | 11 Ten Years' Registered Births to 100 Married Women from 20 to 45 Years' Old. |
|---|---|---|---|---|---|---|---|---|---|---|
| 20,066 | 12 | England and Wales | 370,787 | 56,892 | 19,644 | 333,539 | 296,993 | 36,546 | 12 | 299 |
| 2,804 | 19 | London | 50,503 | 7,901 | 2,588 | 45,190 | 42,136 | 3,054 | 7 | 270 |
| 140 | 9 | Bedfordshire | 2,577 | 470 | 158 | 2,265 | 2,009 | 256 | 12½ | 313 |
| 206 | 4 | Berkshire | 3,356 | 472 | 151 | 3,035 | 2,745 | 290 | 10 | 300 |
| 147 | 3 | Buckinghamshire | 2,656 | 398 | 142 | 2,400 | 2,056 | 344 | 16 | 306 |
| 182 | −5 | Cambridgeshire | 3,238 | 526 | 201 | 2,913 | 2,540 | 373 | 15 | 311 |
| 470 | 11 | Chester | 8,572 | 1,397 | 461 | 7,636 | 6,837 | 799 | 12 | 302 |
| 365 | 4 | Cornwall | 6,671 | 934 | 328 | 6,065 | 5,240 | 825 | 15½ | 331 |
| 205 | 5 | Cumberland | 3,548 | 551 | 172 | 3,169 | 2,846 | 323 | 11 | 331 |
| 294 | 15 | Derby | 5,582 | 847 | 290 | 5,025 | 4,408 | 617 | 14 | 307 |
| 589 | 3 | Devonshire | 9,613 | 1,212 | 443 | 8,844 | 8,083 | 761 | 9 | 284 |
| 182 | 2 | Dorsetshire | 3,145 | 412 | 137 | 2,870 | 2,448 | 422 | 17 | 301 |
| 542 | 30 | Durham | 11,918 | 1,692 | 595 | 10,821 | 9,266 | 1,555 | 17 | 358 |
| 380 | 10 | Essex | 6,534 | 891 | 345 | 5,988 | 5,366 | 622 | 11½ | 289 |
| 444 | 6 | Gloucestershire | 7,431 | 1,019 | 354 | 6,766 | 5,988 | 778 | 13 | 290 |
| 457 | 19 | Hants | 7,679 | 963 | 335 | 7,051 | 6,292 | 759 | 12 | 290 |
| 108 | 7 | Herefordshire | 1,719 | 219 | 89 | 1,589 | 1,372 | 217 | 15½ | 290 |
| 177 | 4 | Herts | 3,046 | 453 | 141 | 2,734 | 2,356 | 378 | 16 | 304 |
| 59 | ·1 | Huntingdonshire | 1,087 | 170 | 66 | 983 | 855 | 128 | 15 | 317 |
| 545 | 19 | Kent (*extra metropolitan*) | 9,266 | 1,202 | 438 | 8,502 | 7,673 | 829 | 11 | 310 |
| 2,465 | 20 | Lancashire | 48,604 | 8,500 | 2,886 | 42,990 | 39,132 | 858 | 10 | 309 |
| 244 | 3 | Leicestershire | 4,574 | 798 | 279 | 4,055 | 3,659 | 396 | 11 | 309 |
| 404 | 1 | Lincolnshire | 7,138 | 1,084 | 427 | 6,481 | 5,557 | 924 | 17 | 312 |

TABLE K.—*Apparent Deficiency in the* 1861 *Census, of Male Infants—Contd.*

| 1 Thousands. | 2 Increase per Cent. | 3 — | 4 Births, 1860, Plus 6 per Cent. | 5 Deaths under 1, 1860. | 6 One-third Deaths under 1, 1859. | 7 Calculated Population, viz., Column 4 Minus 5 Plus 6. | 8 Census to 1st January, 1861. | 9 Deficiency. | 10 Deficiency per Cent. | 11 Ten Years' Registered Births to 100 Married Women from 20 to 45 Years' Old. |
|---|---|---|---|---|---|---|---|---|---|---|
| 189 | 17 | Middlesex (*extra metropolitan*) | 3,040 | 407 | 143 | 2,776 | 2,607 | 169 | 6½ | 273 |
| 197 | 11 | Monmouth | 3,912 | 519 | 194 | 3,587 | 2,971 | 616 | 21 | 314 |
| 427 | −2 | Norfolk | 7,357 | 1,326 | 447 | 6,478 | 5,600 | 878 | 16 | 292 |
| 231 | 7 | Northamptonshire | 4,558 | 747 | 259 | 4,070 | 3,540 | 530 | 15 | 300 |
| 343 | 13 | Northumberland | 6,456 | 907 | 314 | 5,863 | 5,223 | 640 | 12 | 317 |
| 324 | 9 | Nottinghamshire | 6,487 | 1,073 | 412 | 5,826 | 4,860 | 966 | 20 | 309 |
| 171 | 3 | Oxfordshire | 3,141 | 456 | 160 | 2,845 | 2,436 | 409 | 17 | 310 |
| 23 | −5 | Rutlandshire | 411 | 48 | 20 | 383 | 334 | 49 | 15 | 321 |
| 260 | 5 | Salop | 4,471 | 684 | 223 | 4,010 | 3,504 | 506 | 14 | 303 |
| 463 | ·2 | Somersetshire | 7,583 | 988 | 370 | 6,965 | 6,190 | 775 | 12½ | 297 |
| 770 | 23 | Staffordshire | 17,116 | 2,880 | 999 | 15,235 | 13,330 | 1,905 | 14 | 338 |
| 335 | −·04 | Suffolk | 5,854 | 854 | 313 | 5,313 | 4,820 | 493 | 10 | 300 |
| 273 | 22 | Surrey (*extra metropolitan*) | 4,424 | 548 | 183 | 4,059 | 3,721 | 338 | 9 | 271 |
| 367 | 8 | Sussex | 5,842 | 750 | 263 | 5,355 | 4,969 | 386 | 7 | 287 |
| 561 | 18 | Warwickshire | 11,102 | 1,734 | 653 | 10,021 | 8,830 | 1,191 | 13 | 305 |
| 61 | 4 | Westmoreland | 1,059 | 111 | 40 | 988 | 867 | 121 | 14 | 331 |
| 236 | −2 | Wiltshire | 4,008 | 520 | 176 | 3,664 | 3,175 | 489 | 15 | 313 |
| 295 | 11 | Worcestershire | 5,438 | 765 | 311 | 4,984 | 4,463 | 521 | 12 | 299 |
| 275 | 20 | East Riding | 5,096 | 884 | 318 | 4,530 | 4,026 | 504 | 12 | 297 |
| 211 | 14 | North „ | 3,903 | 525 | 191 | 3,569 | 3,081 | 488 | 16 | 340 |
| 1,530 | 14 | West „ | 30,899 | 5,269 | 1,713 | 27,343 | 23,996 | 3,347 | 14 | 295 |
| 416 | 3 | North Wales | 6,757 | 1,030 | 290 | 6,017 | 5,368 | 649 | 12 | 306 |
| 700 | 6½ | South „ | 13,403 | 1,756 | 625 | 12,272 | 10,254 | 2,018 | 19 | 302 |
| | | | 370,790 | 56,892 | 19,643 | 333,541 | 297,099 | 36,515 | — | — |

*Note.*—No allowance is made for emigration or immigration.

In column 11, the average is estimated by deducting from the census numbers, half the rate of increase: *e.g.* for England and Wales one-eighteenth part is deducted.

TABLE I.—*Apparent Deficiency in the* 1861 *Census, of Male Infants under one*

| 1 Thousands. | 2 Increase per Cent. | 3 — | 4 Births, 1860, plus 6 per Cent. | 5 Deaths under 1, 1860. | 6 One-third Deaths under 1, 1859. |
|---|---|---|---|---|---|
| 20,066 | 12 | England and Wales | 370,787 | 56,892 | 19,644 |
| 2,804 | 19 | London | 50,503 | 7,901 | 2,588 |
| 68 | −2 | Bath | 908 | 129 | 57 |
| 213 | 22 | Birmingham | 4,552 | 749 | 270 |
| 120 | 32 | Blackburn | 2,668 | 502 | 160 |
| 130 | 14 | Bolton | 2,892 | 507 | 175 |
| 196 | 8 | Bradford | 3,932 | 760 | 236 |
| 78 | 18 | Brighton | 1,243 | 215 | 66 |
| 66 | — | Bristol | 1,137 | 192 | 66 |
| 50 | 13 | Cheltenham | 734 | 82 | 36 |
| 59 | 10 | Chester | 900 | 131 | 41 |
| 42 | 14 | Coventry | 887 | 149 | 67 |
| 51 | 17 | Derby | 1,051 | 162 | 52 |
| 59 | 24 | Gateshead | 1,316 | 178 | 65 |
| 57 | 12 | Hull | 952 | 174 | 66 |
| 118 | 16 | Leeds | 2,372 | 463 | 145 |
| 68 | 12 | Leicester | 1,649 | 285 | 93 |
| 270 | 4 | Liverpool | 4,565 | 1,025 | 378 |
| 62 | −3 | Macclesfield | 1,121 | 204 | 76 |
| 244 | 7 | Manchester | 4,874 | 913 | 328 |
| 105 | 20 | Salford | 2,173 | 352 | 126 |
| 111 | 24 | Newcastle-on-Tyne | 2,175 | 355 | 128 |
| 74 | 9 | Norwich | 1,329 | 301 | 95 |
| 76 | 30 | Nottingham | 1,579 | 261 | 106 |
| 111 | 28 | Oldham | 2,288 | 434 | 145 |
| 63 | 20 | Plymouth | 1,059 | 179 | 64 |
| 95 | 31 | Portsmouth | 1,800 | 270 | 84 |
| 111 | 14 | Preston | 2,297 | 467 | 156 |
| 128 | 24 | Sheffield | 2,860 | 477 | 178 |
| 43 | 27 | Southampton | 878 | 117 | 55 |
| 94 | 5 | Stockport | 1,700 | 344 | 110 |
| 91 | 29 | Sunderland | 1,776 | 234 | 89 |
| 127 | 22 | Wolverhampton | 2,905 | 527 | 176 |
| 30 | 13 | Yarmouth | 551 | 109 | 42 |
| 60 | 10 | York | 1,097 | 197 | 57 |

*Note.*—For mode of calculation

*year old, in some of the principal* CITIES *and* TOWNS *of England and Wales.*

| 7 Calculated Population, viz., Column 4 Minus 5 Plus 6. | 8 Census to 1st January, 1861. | 9 Deficiency. | 10 Deficiency, per Cent. | 11 Ten Years' Registered Births to 100 Married Women from 20 to 45 Years' Old. | 12 Ten Years' Births to 100 Marriages. | 13 Ten Years' Births to 1,000 of Population. |
|---|---|---|---|---|---|---|
| 333,539 | 296,993 | 36,546 | 12 | 299 | 404 | 34·07 |
| 45,190 | 42,136 | 3,054 | 7 | 270 | 327 | 33·47 |
| 836 | 753 | 83 | 11 | 264 | 279 | 25·49 |
| 4,073 | 3,653 | 420 | 11 | 313 | 390 | 40·73 |
| 2,326 | 2,088 | 238 | 11 | 343 | 419 | 40·45 |
| 2,560 | 2,154 | 406 | 19 | 349 | 451 | 41·40 |
| 3,408 | 2,996 | 412 | 14 | 318 | 413 | 39·33 |
| 1,094 | 1,014 | 80 | 8 | 293 | 346 | 31·32 |
| 1,011 | 885 | 126 | 14 | 276 | 175 | 33·20 |
| 688 | 582 | 106 | 18 | 271 | 304 | 25·63 |
| 810 | 794 | 16 | 2 | 291 | 310 | 30·18 |
| 805 | 615 | 190 | 31 | 315 | 342 | 39·62 |
| 941 | 815 | 126 | 15 | 300 | 298 | 37·44 |
| 1,203 | 1,021 | 182 | 17 | 338 | 552 | 39·86 |
| 844 | 841 | 3 | — | 246 | 273 | 32·42 |
| 2,054 | 1,833 | 221 | 12 | 298 | 231 | 37·86 |
| 1,457 | 1,121 | 336 | 30 | 308 | 358 | 37·25 |
| 3,918 | 4,070 | +152 | + 4 | 252 | 224 | 34·14 |
| 993 | 802 | 191 | 24 | 300 | 381 | 33·86 |
| 4,289 | 3,886 | 403 | 10 | 300 | 201 | 38·65 |
| 1,947 | 1,716 | 231 | 13 | 305 | 928 | 38·34 |
| 1,948 | 1,829 | 119 | 6½ | 303 | 231 | 35·67 |
| 1,123 | 1,030 | 93 | 9 | 276 | 314 | 32·98 |
| 1,424 | 1,140 | 284 | 25 | 292 | 284 | 35·17 |
| 1,999 | 1,736 | 259 | 15 | 305 | 585 | 38·55 |
| 944 | 831 | 112 | 13 | 272 | 279 | 32·61 |
| 1,614 | 1,374 | 240 | 17 | 275 | 317 | 34·03 |
| 1,986 | 1,709 | 277 | 16 | 333 | 368 | 37·84 |
| 2,561 | 2,207 | 354 | 16 | 314 | 268 | 42·45 |
| 816 | 659 | 157 | 24 | 288 | 289 | 37·67 |
| 1,466 | 1,345 | 121 | 9 | 294 | 328 | 36·07 |
| 1,631 | 1,453 | 178 | 12 | 332 | 383 | 41·43 |
| 2,554 | 2,180 | 374 | 17 | 348 | 452 | 43·78 |
| 484 | 416 | 68 | 16 | 265 | 328 | 32·42 |
| 957 | 859 | 98 | 11 | 306 | 318 | 33·30 |

see note to Table K.

TABLE N.—AVERAGE *Population, Births, Marriages, and Deaths, in certain Cities and Comparison of the* ESTIMATED *Numbers of Births, Marriages,*

| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|---|
| | Population | | | Average Population. | | | Marriages. | |
| | 1841. | 1851. | 1861. | 1841-50. (First Decade.) | 1851-60. (Second Decade.) | Excess per Cent. of Column 5 over Column 4. | First Decade Registered. | *Calculated* Second Decade viz, Column 7 Plus Column 6. |
| England and Wales... | 15,914,148 | 17,927,609 | 20,066,224 | 16,920,879 | 18,996,916 | 12·27 | 1,355,497 | 1,521,828 |
| London ..... | 1,948,417 | 2,362,236 | 2,803,989 | 2,155,326 | 2,583,113 | 19·85 | 209,847 | 251,501 |
| Bath ..... | 69,083 | 69,847 | 68,336 | 69,465 | 69,092 | −·54 | 6,431 | 6,396 |
| Birmingham (parish) | 138,215 | 173,951 | 212,621 | 156,083 | 193,286 | 23·83 | 13,951 | 17,276 |
| Blackburn ..... | 75,088 | 90,738 | 119,942 | 82,913 | 105,340 | 27·05 | 7,583 | 9,681 |
| Bolton..... | 97,529 | 114,712 | 130,269 | 106,120 | 122,490 | 15·43 | 8,671 | 10,009 |
| Bradford..... | 132,161 | 181,964 | 196,475 | 157,063 | 189,220 | 20·48 | 14,045 | 16,921 |
| Brighton..... | 46,661 | 65,569 | 77,693 | 56,115 | 71,631 | 27·66 | 4,888 | 6,240 |
| Bristol (parish)..... | 64,266 | 65,716 | 66,027 | 64,991 | 65,871 | 1·35 | 12,659 | 12,829 |
| Cheltenham (district) | 40,246 | 44,184 | 49,792 | 42,215 | 46,988 | 11·31 | 3,775 | 4,203 |
| Chester ..... | 49,097 | 53,294 | 58,501 | 51,195 | 55,897 | 9·19 | 4,469 | 4,880 |
| Coventry..... | 31,032 | 36,812 | 41,647 | 33,922 | 39,229 | 15·65 | 3,700 | 4,279 |
| Derby ..... | 35,019 | 43,684 | 51,049 | 39,351 | 47,367 | 20·34 | 4,565 | 5,494 |
| Gateshead ..... | 38,747 | 48,081 | 59,409 | 43,414 | 53,745 | 23·80 | 2,840 | 3,515 |
| Hull..... | 41,150 | 50,670 | 56,888 | 45,910 | 53,779 | 17·12 | 6,025 | 7,055 |
| Leeds*..... | — | — | — | — | — | — | — | — |
| Leicester..... | 50,853 | 60,642 | 68,190 | 55,747 | 64,416 | 15·56 | 5,933 | 6,856 |
| Liverpool ..... | 223,003 | 258,236 | 269,700 | 240,600 | 264,000 | 9·73 | 36,208 | 39,732 |
| Macclesfield ..... | 56,035 | 63,327 | 61,500 | 59,700 | 62,400 | 4·53 | 4,954 | 5,179 |
| Manchester ..... | 192,403 | 228,433 | 244,000 | 210,400 | 236,200 | 12·26 | 46,030 | 51,670 |
| Salford ..... | 70,224 | 87,523 | 105,300 | 78,900 | 96,400 | 22·18 | 834 | 1,029 |
| Newcastle-on-Tyne ... | 71,844 | 89,156 | 111,000 | 80,500 | 100,000 | 24·22 | 11,033 | 13,705 |
| Norwich ..... | 61,846 | 68,295 | 74,400 | 65,000 | 71,300 | 9 69 | 6,339 | 6,954 |
| Nottingham ..... | 53,100 | 58,400 | 75,800 | 55,800 | 67,100 | 20·26 | 5,753 | 6,917 |
| Oldham*..... | 72,400 | 86,800 | 111,300 | 79,600 | 99,000 | 24·37 | | district |
| Plymouth ..... | 36,500 | 52,200 | 62,600 | 44,400 | 57,400 | 29·28 | 5,237 | 6,773 |
| Portsmouth ..... | 53,100 | 72,100 | 94,800 | 62,600 | 83,500 | 33·39 | 7,503 | 10,009 |
| Preston ..... | 77,200 | 96,500 | 110,500 | 86,800 | 103,500 | 19·24 | 7,757 | 9,252 |
| Sheffield ..... ..... | 85,300 | 103,600 | 129,000 | 94,400 | 116,300 | 23·20 | 12,152 | 14,971 |
| Southampton..... | 27,100 | 34,100 | 43,400 | 30,600 | 38,800 | 26 80 | 3,416 | 4,331 |
| Stockport ..... | 85,700 | 90,200 | 94,400 | 88,000 | 92,300 | 4·89 | 6,405 | 6,718 |
| Sunderland ..... | 56,200 | 70,600 | 90,700 | 63,400 | 80,700 | 27·28 | 6,781 | 8,629 |
| Wolverhampton ..... | 80,700 | 104,200 | 126,900 | 92,500 | 115,600 | 24·97 | 9,188 | 11,482 |
| Yarmouth ..... | 24,100 | 26,900 | 30,300 | 25,500 | 28,600 | 12·16 | 2,347 | 2,632 |
| York* ..... | 47,800 | 57,100 | 60,000 | 52,500 | 58,600 | 11·62 | 5,103 | 5,697 |

* Changed district

*Towns of England and Wales, during the Two Decades* 1841-50 *and* 1851-60: *and ınd Deaths, during the Second Decade, with the* REGISTERED *Number.*

| 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 |
|---|---|---|---|---|---|---|---|---|---|
| Marriages. | | Births. | | | | Deaths. | | | |
| *Registered* Second Decade. | Excess or Deficiency Column 9 over Column 8. | First Decade Registered. | *Calculated* Second Decade, viz., Column 11 Plus Column 6. | *Registered* Second Decade. | Excess or Deficiency of Column 13 over Column 12. | First Decade Registered. | *Calculated* Second Decade, viz., Column 15 Plus Column 6. | *Registered* Second Decade. | Excess or Deficiency of Column 17 over Column 16. |
| 1,601,731 | +79,903 | 5,488,736 | 6,162,251 | 6,471,650 | +309,399 | 3,769,396 | 4,231,932 | 4,210,715 | −21,217 |
| 264,153 | +12,652 | 673,790 | 807,538 | 864,563 | +57,025 | 529,102 | 634,128 | 610,473 | −23,655 |
| 6,314 | −82 | 19,224 | 19,120 | 17,614 | −1,506 | 16,674 | 16,584 | 15,224 | −1,360 |
| 20,172 | +2,896 | 57,268 | 70,916 | 78,720 | +7,804 | 40,826 | 50,555 | 51,238 | +683 |
| 10,180 | +549 | 32,652 | 41,484 | 42,610 | +1,126 | 20,881 | 26,529 | 27,750 | +1,221 |
| 11,232 | +1,223 | 43,781 | 50,537 | 50,712 | +175 | 28,434 | 32,821 | 32,924 | +103 |
| 18,143 | +1,222 | 59,117 | 71,225 | 74,843 | +3,618 | 39,061 | 47,060 | 48,609 | +1,549 |
| 6,481 | +241 | 15,152 | 19,344 | 22,438 | +3,094 | 11,988 | 15,304 | 15,757 | +453 |
| 12,486 | −343 | 21,142 | 21,427 | 21,869 | +442 | 18,581 | 18,832 | 17,594 | −1,238 |
| 3.955 | −248 | 11,989 | 13,345 | 12,042 | −1,303 | 8,494 | 9,454 | 8,925 | −529 |
| 5,423 | +543 | 12,567 | 13·721 | 16,820 | +3,099 | 12,025 | 13,130 | 12,374 | −756 |
| 4,538 | +259 | 11,848 | 13,693 | 15,542 | +1,849 | 9,107 | 10,532 | 9,914 | −618 |
| 5,951 | +457 | 12,919 | 15,547 | 17,734 | +2,187 | 9,437 | 11,356 | 11,407 | +51 |
| 3,881 | +366 | 14,693 | 18,190 | 21,425 | +3,235 | 10,648 | 13,180 | 13,876 | +696 |
| 6,382 | −673 | 13,805 | 16,168 | 17,437 | +1,269 | 14,062 | 16,468 | 13,279 | −3,189 |
| — | — | — | — | — | — | — | — | — | — |
| 6,704 | −152 | 20,856 | 24,101 | 23,998 | −103 | 14,921 | 17,242 | 16,366 | −876 |
| 40,259 | +527 | 95,056 | 104,305 | 90,131 | −14,174 | 94,373 | 103,564 | 87,898 | −15,666 |
| 5,521 | +342 | 20,011 | 20,918 | 21,040 | +121 | 15,491 | 16,194 | 15,500 | −694 |
| 45,369 | −6,301 | 77,168 | 86,630 | 91,293 | +4,663 | 69,615 | 78.150 | 74,359 | −3,791 |
| 3,982 | +2,953 | 30,965 | 37,832 | 36,974 | −858 | 21,813 | 26,651 | 25,076 | −1,575 |
| 15,418 | +1,713 | 26,145 | 32,477 | 35,688 | +3,211 | 21,598 | 26,829 | 27,388 | +559 |
| 7,489 | +535 | 17,375 | 19,060 | 23,519 | +4,459 | 15,542 | 17,048 | 17,774 | +726 |
| 8,308 | +1,391 | 17,311 | 20,816 | 23,600 | +2,784 | 14,222 | 17,102 | 17,890 | +788 |
| much | changed | | | | | | | | |
| 6,713 | −60 | 14,004 | 18,105 | 18,707 | +602 | 11,013 | 14,237 | 13,559 | −678 |
| 8,950 | −1,059 | 21,458 | 28,623 | 28,407 | −216 | 15,461 | 20,623 | 19,017 | −1,606 |
| 10,669 | +1,417 | 30,692 | 36,597 | 39,176 | +2,579 | 21,827 | 26,027 | 28,130 | +2,103 |
| 18,439 | +3,468 | 36,111 | 44,488 | 49,361 | +4,873 | 25,174 | 31,012 | 33,084 | +2,072 |
| 5,057 | +726 | 9,039 | 11,462 | 14,601 | +3,139 | 6,982 | 8,854 | 9,477 | +623 |
| 10,142 | +3,424 | 30,424 | 31,910 | 33,286 | +1,376 | 22,237 | 23,324 | 13,643 | +319 |
| 8,730 | +101 | 23,048 | 29,350 | 33,413 | +4,063 | 15,428 | 19,632 | 20,072 | +440 |
| 11,188 | −294 | 34,196 | 42,734 | 50,573 | +7,839 | 25,176 | 31,462 | 31,899 | +437 |
| 2,826 | +194 | 8,119 | 9,106 | 9,261 | +155 | 5,945 | 6,668 | 7,075 | +407 |
| 5,976 | +279 | 15,594 | 17,334 | 19,027 | +1,693 | 12,388 | 13,770 | 13,718 | −52 |

Leeds is entirely changed.

TABLE M.—*Apparent Deficiency in the* 1861 *Census, of Male Infants under One Year Old, in the* METROPOLIS *and certain of its* REGISTRATION DISTRICTS.

| 1<br>Thousands. | 2<br>Increase per Cent. | 3<br>— | 4<br>Births, 1860, Plus 6 per Cent. | 5<br>Deaths under 1, 1860. | 6<br>One-third Deaths under 1, 1859. | 7<br>Calculated Population, viz., Column 4 Minus 5 Plus 6. | 8<br>Census to 1st January, 1861. | 9<br>Deficiency. | 10<br>Deficiency per Cent. | 11<br>Ten Years Registered Births to 100 Married Women from 20 to 45 Years' Old. |
|---|---|---|---|---|---|---|---|---|---|---|
| — | 12 | England and Wales | 370,787 | 56,892 | 19,644 | 333,539 | 296,993 | 36,546 | 12 | 299 |
| 2,804 | 19 | London | 50,503 | 7,901 | 2,588 | 45,190 | 42,136 | 3,054 | 7 | 270 |
| 66 | 89 | Lewisham | 1,180 | 151 | 50 | 1,079 | 1,066 | 13 | 1 | 424 |
| 19 | 59 | Hampstead | 262 | 44 | 10 | 228 | 235 | +7 | +3 | 281 |
| 88 | 20 | St. George's, Hanover Square | 1,253 | 194 | 60 | 1,119 | 1,041 | 78 | 8 | 235 |
| 35 | −3 | St. James, Westminster | +505 | 90 | 34 | 449 | 449 | — | — | 230 |
| 162 | 3 | Marylebone | 2,614 | 461 | 159 | 2,312 | 2,150 | 162 | 7 | 254 |
| 23 | −8 | St. Martin-in-the-Fields | 311 | 48 | 22 | 285 | 289 | +4 | +1 | 241 |
| 43 | −3 | Strand | 657 | 111 | 41 | 587 | 586 | 1 | — | 230 |
| 129 | 18 | Shoreditch | 2,757 | 442 | 137 | 2,452 | 2,279 | 173 | 7 | 287 |
| 58 | 21 | Bermondsey | 1,237 | 190 | 62 | 1,109 | 1,043 | 66 | 6 | 285 |
| 49 | 1 | St. George's-in-the-East | 1,016 | 202 | 60 | 874 | 808 | 66 | 8 | 267 |
| 79 | −1 | Whitechapel | 1,518 | 275 | 92 | 1,335 | 1,189 | 146 | 12 | 274 |
| 56 | 7 | St. George's, Southwark | 1,010 | 194 | 70 | 886 | 867 | 19 | 2 | 265 |
| 54 | — | St. Giles's | 987 | 178 | 50 | 859 | 722 | 137 | 19 | 270 |
| 27 | −4 | West London | 430 | 91 | 29 | 368 | 367 | 1 | — | 249 |
| 46 | −19 | City | 544 | 64 | 28 | 508 | 475 | 33 | 7 | 249 |
| 105 | 17 | Bethnal Green | 2,204 | 339 | 104 | 1,969 | 1,914 | 55 | 3 | 294 |

*Note.*—For modes of calculation, see note to Table K.